



0000169077

EPCOR Water Arizona Inc.

New Rate Application

WS-01303A-16-0145

Part 1 of 7

BARCODE 0000169077

To Review Part 2 Please see

BARCODE 0000169078

ORIGINAL

NEW APPLICATION

BEFORE THE ARIZONA CORPORATION COMMISSION

DOUG LITTLE
Chairman

BOB STUMP
Commissioner

BOB BURNS
Commissioner

TOM FORESE
Commissioner

ANDY TOBIN
Commissioner

Arizona Corporation Commission

DOCKETED

APR 29 2016

DOCKETED BY

[Signature]

ARIZONA CORPORATION COMMISSION
DOCKET CONTROL

2016 APR 29 P 2:25

RECEIVED

IN THE MATTER OF THE
APPLICATION OF EPCOR WATER
ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT
FAIR VALUE OF ITS UTILITY PLANT
AND PROPERTY AND FOR
INCREASES/DECREASES IN ITS
RATES AND CHARGES BASED
THEREON FOR UTILITY SERVICE BY
ITS AGUA FRIA, ANTHEM, MOHAVE,
SUN CITY, AND SUN CITY WEST
WASTEWATER DISTRICTS AND FOR
CONSIDERATION OF
CONSOLIDATION AND DE-
CONSOLIDATION PROPOSALS

Docket No. WS-01303A-16-0145

APPLICATION

EPCOR Water Arizona Inc. ("EWAZ" or "Company"), pursuant to A.R.S. §§ 40-250 and 40-251 and AAC R14-2-103, submits this Application for new rates to be effective no later than **June 1, 2017**. As proposed, the new rates are intended to result in an increase in revenues of approximately \$5,153,623, or approximately 16.8% over adjusted test year revenues of \$30,758,167.

In Decision 74881, the Arizona Corporation Commission ("Commission") approved a settlement agreement ("Settlement Agreement") that established rate design on

1 an interim basis until such time as the Commission could consider the issues of
2 consolidation and deconsolidation in the Company's next wastewater rate case.¹ The
3 Settlement Agreement set the framework for this proceeding by maintaining that the issue
4 of consolidation or deconsolidation remained unresolved and that the parties retained their
5 rights to take any position or make any proposals in the 2015 wastewater rate case.² The
6 Settlement Agreement also established the parameters of this wastewater rate case,
7 requiring the Company's rate case to include revenue requirements with cost-of-service
8 studies for each district on a stand-alone basis, a consolidated basis, and a deconsolidated
9 basis to allow the parties to use the information to evaluate whether to support a
10 consolidated or deconsolidated proposal.

11 As required by Decision No. 74481, the Company is filing the five individual
12 districts' revenue requirements with cost-of-service studies for each district on a fully
13 consolidated basis, on a separate wastewater system basis, and also on a fully
14 deconsolidated basis by wastewater treatment facility.

15 **I. OVERVIEW OF APPLICATION**

16 During the test year, the Company's adjusted gross revenues, adjusted operating
17 income, operating income deficiency, adjusted fair value rate base and rate of return by
18 district were as follows:
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20
21
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24

25 ¹ Decision No. 74881 at 29.

26 ² Decision No. 75272 (issued Sept. 16, 2015) granted an extension to April 29, 2016 and required the
Company to use a December 31, 2015 test year.

District	Adjusted Gross Revenues	Adjusted Operating Income	Operating Income Deficiency	Adjusted Fair Value Rate Base ³	Rate of Return ⁴
Agua Fria Wastewater	\$6,051,044	\$641,505	\$289,374	\$14,685,691	4.37 %
Anthem Wastewater	\$6,923,079	\$711,844	\$639,033	\$20,837,799	3.42 %
Mohave Wastewater	\$1,507,737	\$250,792	\$126,090	\$5,534,484	4.53 %
Sun City Wastewater	\$8,956,435	\$1,429,896	\$834,796	\$36,618,889	3.90 %
Sun City West Wastewater	\$7,319,872	\$676,312	\$1,272,439	\$32,821,488	2.06 %
Total	\$30,758,167	\$3,710,349	\$3,161,732	\$110,498,351	3.36 %

A. Fair Value Rate Base. EWAZ's revenue requirement increase is based on an Original Cost Rate Base ("OCRB") of \$94.126 million and a Replacement Cost New Less Depreciation ("RCND") rate base of \$126.871 million, resulting in Fair Value Rate Base ("FVRB") of \$110.498 million using an equal (50/50) weighting of OCRB and RCND.

B. Capital Structure. The Company proposes to use its actual capital structure in determining the weighted average cost of capital ("WACC"). EWAZ's actual test year capital structure is 43.64% equity and 56.36% debt.

C. Cost of Capital. The Company's cost of long-term debt is 4.29% and required cost of common equity is 10.65%. The Company's WACC, based on these cost rates and the test year capital structure, is 7.07%.

³ Fair Value Rate Base ("FVRB") reflects the average of the Original Cost Rate Base ("OCRB") and the Reconstructed Cost New Depreciated ("RCND") Rate Base in the Company's Application.

⁴ Rate of return reflects the return on the FVRB.

D. Fair Value Rate of Return. EWAZ is further proposing a fair value rate of return ("FVROR") of 6.22%. This FVROR is based on the methodology adopted by the Commission in recent rate cases.

E. Revenue Increase (Stand Alone and Consolidated Basis). The Company seeks the following revenue increases for the districts in this case (provided on a stand-alone and consolidated basis) as follows:

Revenue Increase:	<u>Request</u>	<u>Proposed Residential Rate</u>	<u>Current Residential Rate</u>
Agua Fria Wastewater	\$ 471,679	\$ 76.09	\$71.16
Anthem Wastewater	\$ 1,041,624	\$ 61.48	\$60.33 ⁵
Mohave Wastewater	\$ 205,526	\$ 89.44	\$78.53 ⁶
Sun City Wastewater	\$ 1,360,718	\$ 25.03	\$22.11
Sun City West Wastewater	\$ 2,074,076	\$ 42.00	\$32.46
Consolidated Total	\$ 5,153,263	\$ 41.02	

F. Revenue Increase (Deconsolidated Basis). On a fully deconsolidated basis by wastewater treatment facility, the requested revenue increases are as follows:

Revenue Increase:	<u>Request</u>	<u>Proposed Residential Rate</u>	<u>Current Residential Rate</u>
Northwest Valley Wastewater	\$ 1,690,111	\$ 45.65	\$32.46
Anthem Wastewater	\$ 1,041,624	\$ 61.48	\$60.33 ⁷
Wishing Well Wastewater	\$ 74,694	\$ 82.69	\$78.53 ⁸
Arizona Gateway Wastewater	\$ 130,832	N/A	N/A ⁹
Sun City Wastewater	\$ 1,360,718	\$ 25.03	\$22.11
Verrado Wastewater	\$ 649,651	\$ 89.63	\$71.16
Russell Ranch Wastewater	\$ 205,878	\$ 153.99	\$71.16
Deconsolidated Total	\$5,153,509 ¹⁰		

II. ADDITIONAL KEY ISSUES

A. Consolidation: As outlined in the testimony of Mr. Shawn Bradford, the Company continues to support the full consolidation of the wastewater districts which are part of this case. Full consolidation of these five wastewater districts is the most equitable

⁵ At consumption level of 7,000 gallons or more (\$31.18 + \$4.1649 per kgal).

⁶ Phase III of phased-in rates (effective 9/1/17) as ordered by Decision No. 75268.

⁷ At consumption level of 7,000 gallons or more (\$31.18 + \$4.1649 per kgal).

⁸ Phase III of phase-in (effective 9/1/17) as ordered by Decision No. 75268.

⁹ The Arizona Gateway Wastewater District is only commercial (i.e. no residential rate impacts).

¹⁰ Difference of \$246 between the consolidated and deconsolidated totals is due to rounding of the numerous allocations of plant and expenses.

1 long-term approach for establishing reasonable rates to recover the reasonable expenses
2 and capital expenditures that will ultimately impact every district in the future. In the long
3 term, all wastewater customers will benefit from predictable, uniform rate structures
4 (which reduce rate shock and customer confusion), reduced regulatory expenses, and
5 increased efficiencies.

6 **B. Rate Case Expense:** This proceeding commenced in July 2014 by
7 Commission order in response to numerous customer petitions and complaints.¹¹ As part
8 of that initial proceeding, the Company incurred substantial expenses to respond to the
9 issues raised by the parties to that proceeding. In recognition of these expenses, the
10 Commission authorized the Company “to defer and record in its regulatory accounting
11 records the expenses incurred related to this proceeding and the customer complaints
12 described above for consideration in a future rate case.”¹²

13 As noted in Decision No. 75272, which extended the filing date of this rate case to
14 April 29, 2016, the Company had incurred approximately \$612,000 in costs prior to July
15 31, 2015, and agreed to exclude \$211,518.66 of that rate case expense from its request for
16 recovery. As noted by the Commission:

17 Staff has reviewed the Company’s costs of approximately \$612,000
18 through July 31, 2015 that the Company has deferred and expects to recover under
19 the accounting order granted in Decision No. 74588. Staff has reviewed
20 the costs incurred to date, identified certain areas of concern, and discussed those
21 concerns with the Company. The Company has agreed to limit the total amount
22 eligible for deferral and possible future recovery to \$400,000, as a condition of
23 being granted an extension of time until April 29, 2016. Therefore, approximately
24 \$212,000 shall be removed from the deferral and is ineligible for rate recovery also
25 as a 2015 test-year expense in the upcoming rate case.

26 ¹¹ See Decision No. 74588.

¹² See *id.* at 10.

1 In addition to the amounts incurred prior to July 31, 2015, the Company is seeking an
2 additional \$600,000 in rate case expense for amounts incurred following July 31, 2015 in
3 preparation for this proceeding and amounts expected to be incurred during the rate case
4 process. Given the complexity of the issues raised by this case (including the effort
5 associated with the consolidation, deconsolidation, and partial consolidation by wastewater
6 system scenarios), the Company believes that these costs are reasonable and should be
7 recovered as described in more detail in the testimony of Ms. Sheryl L. Hubbard.

8 **C. Post Test Year Additions:** The Company's Application includes post-test
9 year additions through June 30, 2017. These additions are revenue neutral (i.e., not made
10 to address growth) and should be included as part of this proceeding.

11 **D. Property Tax Adjustor:** The Company is requesting a property tax adjustor
12 mechanism to address increases and decreases in property taxes.

13 **E. Power Adjustor:** The Company is seeking a power cost adjustment
14 mechanism in Agua Fria Wastewater, Anthem Wastewater, Sun City Wastewater, and Sun
15 City West Wastewater districts, which include power costs from Arizona Public Service
16 (APS). A power cost adjustor mechanism was authorized for Mohave Wastewater in
17 Decision 75268 (issued September 8, 2015).

18 **F. Effluent Rate:** The Company is requesting a tariff for all of its districts to
19 allow it to sell effluent at the market rate pursuant to individual contracts.

20 **G. Depreciation Study:** As described in the testimony of Mr. John F.
21 Guastella, the Company is proposing to adopt the Commission Staff's recommended
22 depreciation rates for all wastewater plant, except for Pumping Equipment and Treatment
23 & Disposal Equipment. The Company's experience has been that this equipment realizes a
24 slightly shorter life due to operating conditions and environmental conditions in Arizona.

25 **H. Deployed Service Member Tariff and Accounting Order.** EWAZ is
26 requesting approval to provide credits for deployed service members and an accounting

1 order allowing it to defer the costs associated with a proposed Deployed Service Member
2 Credit Program. The program will be initially be limited to 50 participants per wastewater
3 district and the credit will be equal to the consolidated flat service charge for residential
4 customers or the stand-alone flat service charge, if applicable.

5 **III. ADDITIONAL FILING REQUIREMENTS**

6 A. The Company is a public service corporation and in good standing under the
7 laws of the State of Arizona. The Company's business office is located at 2355 W.
8 Pinnacle Peak Road, Suite 300, Phoenix, Arizona 85027.

9 B. All communications and correspondence pertaining to this Application, as
10 well as discovery, data requests, and pleadings, should be served upon:

11 Thomas Campbell (tcampbell@lrrc.com)
12 Michael T. Hallam (mhallam@lrrc.com)
13 Lewis Roca Rothgerber Christie LLP
201 E. Washington Street
Phoenix, AZ 85004

14 and also:

15 Sheryl L. Hubbard (shubbard@epcor.com)
16 Sarah M. Mahler (smahler@epcor.com)
17 2355 W. Pinnacle Peak Road, Suite 300
Phoenix, AZ 85027

18 Ms. Hubbard is the person responsible for overseeing and directing the conduct of this rate
19 application. Her telephone number is (623) 445-2455.

20 C. Accompanying this Application are the relevant standard filing requirements
21 and rate design schedules described in AAC R14-2-103. Also attached is the Direct
22 Testimony of the following witnesses in support of the Company's Application:

23 **WITNESS**

SUBJECT OF TESTIMONY

24 Mr. Shawn Bradford

25 Company's recommendation for consolidation /
26 deconsolidation including geographic /economic /
demographic support, and cost reductions /
efficiencies anticipated with full consolidation

1	Ms. Sheryl L. Hubbard	Overview of the rate case, capital structure and cost
2		of debt, lead / lag study and cash working capital,
3		rate case expense, case format (stand alone,
4		consolidation, and deconsolidation by treatment
5		facility) and summary of Company witnesses and
6		content of rate case
7	Pauline Ahern	Cost of equity and risk free rate for fair value rate of
8	(Sussex Advisors)	return
9	Connie Heppenstall	Cost of Service Study (COSS), Rate Design for
10	(Gannett Fleming)	stand-alone, consolidation, and deconsolidation by
11		wastewater treatment facility, low income rate
12		design, and customer annualization adjustment
13	Tom Bourassa	Reconstructed Cost New less Depreciation
14		(RCNLD) study
15	John F. Guastella	Depreciation rates
16	(Guastella Associates)	
17	Andrew Brown	Post-Test Year Plant Additions through June 2017
18	Jeffrey W. Stuck	Operations for Anthem Wastewater and Mohave
19		Wastewater
20	Frank Metzler	Operations for Sun City Wastewater, Sun City West
21		Wastewater, and Agua Fria Wastewater, including a
22		description of the Tolleson treatment facility's
23		capital and operating expenses
24	Sarah M. Mahler	Rate base, rollforwards of plant activity from last
25		rate case, income statement pro forma adjustments,
26		financial projections, and Deployed Service
		Member Credit Program
	Sandra L. Murrey	Income statement pro forma adjustments and
		proposed tariffs
	Jon P. Boizelle	Income statement pro forma adjustments, power
		cost adjustor mechanism and property tax adjustor
		mechanism

1 **IV. REQUESTED RELIEF**

2 The Company requests that the Commission issue an order consistent with the
3 requests set forth in this Application, as more fully set forth in the testimony, exhibits and
4 schedules that accompany this Application. Given the history of this proceeding and the
5 issues presented, the Company respectfully requests that the Commission process this
6 Application in an expedited manner and that new rates be effective as soon as possible, but
7 no later than June 1, 2017.

8
9 RESPECTFULLY SUBMITTED this 29th day of April, 2016.

10
11 LEWIS ROCA ROTHGERBER CHRISTIE LLP

12
13
14 

15 Thomas Campbell
16 Michael T. Hallam
17 201 E. Washington Street
18 Phoenix, AZ 85004
19 (602) 262-5340
20 Attorneys for EPCOR Water Arizona Inc.

21 ORIGINAL AND thirteen (13) copies
22 of the foregoing hand-delivered this
23 29th day of April, 2016, to:

24 The Arizona Corporation Commission
25 Utilities Division – Docket Control
26 1200 W. Washington Street
Phoenix, Arizona 85007

Copy of the foregoing hand-delivered
this 29th day of April, 2016, to:

Thomas Broderick
Director, Utilities Division
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

1 Dwight Nodes
2 Chief Administrative Law Judge, Hearing Division
3 1200 W. Washington Street
4 Phoenix, Arizona 85007

5 Janice Alward
6 Chief Counsel, Legal Division
7 Arizona Corporation Commission
8 1200 W. Washington Street
9 Phoenix, Arizona 85007

10 The Company will also mail a copy of this Application and schedules on a disc to the
11 parties on the service list for Decision No. 74881.
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Additional Filing
Requirements

1) Compliance Status Reports

1a) Arizona Department of Environmental
Quality

Compliance Status Reports-Wastewater



Wastewater Compliance Status Report
Water Quality Compliance Section
1110 W. Washington
Phoenix, AZ 85007

FACILITY NAME:	RUSSELL RANCH - WWTP	PLACE ID: 16296	DATE: 4/20/2016
PERMIT ISSUANCE DATE:		PERMIT#:	
APP: 5/29/2007	LTF#: 36953	N/A	105229
AZPDES: N/A	LTF#: N/A	<input type="checkbox"/> AZPDES	<input checked="" type="checkbox"/> AQUIFER PROTECTION (APP)
DATE LAST INSPECTION: 7/10/2006		COMPLIANCE PERIOD: 1/1/2015 - 12/31/2015	
EVALUATION COMPLETED BY: TRACY BUNCH		PHONE: 602-771-4571	

OVERALL COMPLIANCE STATUS GENERAL STATEMENT

The following is the valuation of the compliance status for the above named facility. Please note that the compliance status of a facility may change based upon subsequent monitoring results or a facility inspection. This compliance review is based on information available as of the date of this document.

COMMENTS:

Review of the APP reporting requirement and monitoring results that have been submitted for this period indicate that the facility self-reported no monitoring and reporting violations:

COMPLIANCE REVIEW: Check All That Apply

<input type="checkbox"/>	Self-Monitoring Report Form Deficiencies (APP)	<input type="checkbox"/>	Notice of Opportunity to Correct
<input type="checkbox"/>	Self-Monitoring report Form Missing Parameter (APP)	<input type="checkbox"/>	Notice of Violation
<input type="checkbox"/>	Self-Monitoring Report Form Discharge Limit Exceedances (APP)	<input type="checkbox"/>	Administrative Order
<input type="checkbox"/>	Discharge Monitoring Report Form Missing Parameters (AZPDES)	<input type="checkbox"/>	Consent Judgement
<input type="checkbox"/>	Discharge Monitoring Report Form Deficiencies (AZPDES)	<input type="checkbox"/>	Other
<input type="checkbox"/>	Discharge Monitoring Report Form Exceedances(AZPDES)		
<input type="checkbox"/>	Late Submittal		
<input type="checkbox"/>	Non-Submittals		

COMPLIANCE REVIEW: Check All That Apply

<input checked="" type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determined that as of this date the facility was currently in compliance for the review period noted above.
<input type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determined that as of this date the facility was not in violation at a level at which ADEQ would take an action or issue a Notice of Opportunity to Correct or Notice of Violation and/or is in compliance with the Order/Judgement for the review period noted above.
<input type="checkbox"/>	Based upon the data submitted by the facility for the review period noted above, ADEQ cannot determine a compliance status until the facility corrects missing and /or deficient data.
<input type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determine this facility was not in compliance with its permit(s), wastewater regulation, and/or Order/Judgement for the review period above.

FACILITY NAME:	NORTHWEST VALLEY - WRF	PLACE ID: 9539	DATE: 4/20/2016
PERMIT ISSUANCE DATE:		PERMIT#:	
APP: 5/29/2007	LTF#: 36946	N/A	102667
AZPDES: N/A	LTF#: N/A	<input type="checkbox"/> AZPDES	<input checked="" type="checkbox"/> AQUIFER PROTECTION (APP)
DATE LAST INSPECTION: 8/15/2006		COMPLIANCE PERIOD: 1/1/2015 - 12/31/2015	
EVALUATION COMPLETED BY: TRACY BUNCH		PHONE: 602-771-4571	

OVERALL COMPLIANCE STATUS GENERAL STATEMENT

The following is the valuation of the compliance status for the above named facility. Please note that the compliance status of a facility may change based upon subsequent monitoring results or a facility inspection. This compliance review is based on information available as of the date of this document.

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<input type="checkbox"/>	Self-Monitoring Report Form Deficiencies (APP)	<input type="checkbox"/>	Notice of Opportunity to Correct
<input type="checkbox"/>	Self-Monitoring report Form Missing Parameter (APP)	<input type="checkbox"/>	Notice of Violation
<input type="checkbox"/>	Self-Monitoring Report Form Discharge Limit Exceedances (APP)	<input type="checkbox"/>	Administrative Order
<input type="checkbox"/>	Discharge Monitoring Report Form Missing Parameters (AZPDES)	<input type="checkbox"/>	Consent Judgement
<input type="checkbox"/>	Discharge Monitoring Report Form Deficiencies (AZPDES)	<input type="checkbox"/>	Other
<input type="checkbox"/>	Discharge Monitoring Report Form Exceedances(AZPDES)		
<input type="checkbox"/>	Late Submittal		
<input type="checkbox"/>	Non-Submittals		

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<input type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determined that as of this date the facility was not in violation at a level at which ADEQ would take an action or issue a Notice of Opportunity to Correct or Notice of Violation and/or is in compliance with the Order/Judgement for the review period noted above.
<input type="checkbox"/>	Based upon the data submitted by the facility for the review period noted above, ADEQ cannot determine a compliance status until the facility corrects missing and /or deficient data.
<input type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determine this facility was not in compliance with its permit(s), wastewater regulation, and/or Order/Judgement for the review period above.

FACILITY NAME: VERRADO WRF	PLACE ID: 16908	DATE: 4/20/2016
PERMIT ISSUANCE DATE:	PERMIT#:	
APP: 7/9/2014 LTF#: 60764	AZ0026794 105202	
AZPDES: 9/21/2015 LTF#: 61452	<input checked="" type="checkbox"/> AZPDES <input checked="" type="checkbox"/> AQUIFER PROTECTION (APP)	
DATE LAST INSPECTION: 9/26/2005	COMPLIANCE PERIOD: 1/1/2015 - 12/31/2015	
EVALUATION COMPLETED BY: TRACY BUNCH	PHONE: 602-771-4571	

OVERALL COMPLIANCE STATUS GENERAL STATEMENT

The following is the valuation of the compliance status for the above named facility. Please note that the compliance status of a facility may change based upon subsequent monitoring results or a facility inspection. This compliance review is based on information available as of the date of this document.

COMMENTS:

Review of the APP reporting requirement and monitoring results that have been submitted for this period indicate that the facility self-reported monitoring and reporting violations:

APP:

- 1 daily exceedance for Turbidity **1st quarter 2015** at monitoring point 22522, Reclaim Class A, Discharge From Chlor Unit.
- 1 daily exceedance for Daily Average Turbidity **1st quarter 2015** at monitoring point 22522, Reclaim Class A, Discharge From Chlor Unit.

DMR:

No violations

COMPLIANCE REVIEW: Check All That Apply

<input type="checkbox"/>	Self-Monitoring Report Form Deficiencies (APP)	<input type="checkbox"/>	Notice of Opportunity to Correct
<input type="checkbox"/>	Self-Monitoring report Form Missing Parameter (APP)	<input type="checkbox"/>	Notice of Violation
<input checked="" type="checkbox"/>	Self-Monitoring Report Form Discharge Limit Exceedances (APP)	<input type="checkbox"/>	Administrative Order
<input type="checkbox"/>	Discharge Monitoring Report Form Missing Parameters (AZPDES)	<input type="checkbox"/>	Consent Judgement
<input type="checkbox"/>	Discharge Monitoring Report Form Deficiencies (AZPDES)	<input type="checkbox"/>	Other
<input type="checkbox"/>	Discharge Monitoring Report Form Exceedances(AZPDES)		
<input type="checkbox"/>	Late Submittal		
<input type="checkbox"/>	Non-Submittals		

From: Calkins, John
To: Hubbard, Sheryl
Subject: Verrado Compliance Status Report-APP ID# 105202
Date: Monday, April 25, 2016 1:08:10 PM

Hi Sheryl,

In January 2015 the Central Operations group completed an inspection/maintenance project for a process treatment basin in the Verrado WWTP. When the treatment basin was placed back into operation, due to cooler winter ambient air temperatures, it took longer to get the "biology" up and effectively running to pre-project conditions. The slower than average reestablishment of the biological portion of the treatment process eventually led to a spike in effluent turbidity levels due to a temporary overloading of the filtration process. A nephelometric turbidity unit (NTU) result of 9.18 recorded on January 19, 2015 exceeded the single sample maximum turbidity permit discharge limit of 5 NTUs. The 24-hour average turbidity of 2.5 NTUs recorded on January 22, 2015 exceeded the permit discharge limit of 2 NTUs. Environmental Compliance (EC) submitted the required 5-day report for this minor water quality excursion event to ADEQ on January 23, 2015. Central Ops investigated the incident and made procedural changes to the existing inspection/maintenance processes to prevent a future repeat occurrence. Since this was a one-time event, a minor infringement, and the facility quickly returned to conforming operations, ADEQ did not follow-up with written correspondence nor did ADEQ conduct a site inspection. To date no further deviations from required permit conditions have transpired.

Regards,

John



John Calkins
Director of Compliance
EPCOR Water
2355 W. Pinnacle Peak Road, Suite 300
Phoenix, AZ 85027

T: 623.445.2406
F: 623.445.2454
C: 480.262.8112

epcor.com

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**Wastewater Compliance Status Report
Water Quality Compliance Section
1110 W. Washington
Phoenix, AZ 85007**

FACILITY NAME:	ANTHEM WATER CAMPUS - WWTP	PLACE ID: 8632	DATE: 4/20/2016
PERMIT ISSUANCE DATE:		PERMIT#:	
APP: 6/20/2014	LTF#: 60602	AZ0025429	103259
AZPDES: 7/3/2012	LTF#: 53345	<input checked="" type="checkbox"/> AZPDES	<input checked="" type="checkbox"/> AQUIFER PROTECTION (APP)
DATE LAST INSPECTION: 1/28/2014		COMPLIANCE PERIOD: 1/1/2015 - 12-31-2015	
EVALUATION COMPLETED BY: TRACY BUNCH		PHONE: 602-771-4571	

OVERALL COMPLIANCE STATUS GENERAL STATEMENT

The following is the valuation of the compliance status for the above named facility. Please note that the compliance status of a facility may change based upon subsequent monitoring results or a facility inspection. This compliance review is based on information available as of the date of this document.

COMMENTS:

Review of the APP reporting requirement and monitoring results that have been submitted for this period indicate that the facility self-reported no monitoring and reporting violations:

COMPLIANCE REVIEW: Check All That Apply

<input type="checkbox"/>	Self-Monitoring Report Form Deficiencies (APP)	<input type="checkbox"/>	Notice of Opportunity to Correct
<input type="checkbox"/>	Self-Monitoring report Form Missing Parameter (APP)	<input type="checkbox"/>	Notice of Violation
<input type="checkbox"/>	Self-Monitoring Report Form Discharge Limit Exceedances (APP)	<input type="checkbox"/>	Administrative Order
<input type="checkbox"/>	Discharge Monitoring Report Form Missing Parameters (AZPDES)	<input type="checkbox"/>	Consent Judgement
<input type="checkbox"/>	Discharge Monitoring Report Form Deficiencies (AZPDES)	<input type="checkbox"/>	Other
<input type="checkbox"/>	Discharge Monitoring Report Form Exceedances(AZPDES)		
<input type="checkbox"/>	Late Submittal		
<input type="checkbox"/>	Non-Submittals		

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Wastewater Compliance Status Report
Water Quality Compliance Section
1110 W. Washington
Phoenix, AZ 85007

FACILITY NAME: AZ GATEWAY-WWTP		PLACE ID: 16067	DATE: 4/20/2016
PERMIT ISSUANCE DATE:		PERMIT#:	
APP: 7/8/2014	LTF#: 60756	N/A	105010
AZPDES: N/A	LTF#: N/A	<input type="checkbox"/> AZPDES	<input checked="" type="checkbox"/> AQUIFER PROTECTION (APP)
DATE LAST INSPECTION: 4/2/2009		COMPLIANCE PERIOD: 1/1/2015 - 12/31/2015	
EVALUATION COMPLETED BY: TRACY BUNCH		PHONE: 602-771-4571	

OVERALL COMPLIANCE STATUS GENERAL STATEMENT

The following is the valuation of the compliance status for the above named facility. Please note that the compliance status of a facility may change based upon subsequent monitoring results or a facility inspection. This compliance review is based on information available as of the date of this document.

COMMENTS:

Review of the APP reporting requirement and monitoring results that have been submitted for this period indicate that the facility self-reported no monitoring and reporting violations:

COMPLIANCE REVIEW: Check All That Apply

<input type="checkbox"/>	Self-Monitoring Report Form Deficiencies (APP)	<input type="checkbox"/>	Notice of Opportunity to Correct
<input type="checkbox"/>	Self-Monitoring report Form Missing Parameter (APP)	<input type="checkbox"/>	Notice of Violation
<input type="checkbox"/>	Self-Monitoring Report Form Discharge Limit Exceedances (APP)	<input type="checkbox"/>	Administrative Order
<input type="checkbox"/>	Discharge Monitoring Report Form Missing Parameters (AZPDES)	<input type="checkbox"/>	Consent Judgement
<input type="checkbox"/>	Discharge Monitoring Report Form Deficiencies (AZPDES)	<input type="checkbox"/>	Other
<input type="checkbox"/>	Discharge Monitoring Report Form Exceedances(AZPDES)		
<input type="checkbox"/>	Late Submittal		
<input type="checkbox"/>	Non-Submittals		

COMPLIANCE REVIEW: Check All That Apply

<input checked="" type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determined that as of this date the facility was currently in compliance for the review period noted above.
<input type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determined that as of this date the facility was not in violation at a level at which ADEQ would take an action or issue a Notice of Opportunity to Correct or Notice of Violation and/or is in compliance with the Order/Judgement for the review period noted above.
<input type="checkbox"/>	Based upon the data submitted by the facility for the review period noted above, ADEQ cannot determine a compliance status until the facility corrects missing and /or deficient data.
<input type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determine this facility was not in compliance with its permit(s), wastewater regulation, and/or Order/Judgement for the review period above.

FACILITY NAME: WISHING WELL WRF	PLACE ID: 1784	DATE: 4/20/2016
PERMIT ISSUANCE DATE:		PERMIT#:
APP: 7/8/2014	LTF#: 60742	N/A 102181
AZPDES: N/A	LTF#: N/A	<input type="checkbox"/> AZPDES <input checked="" type="checkbox"/> AQUIFER PROTECTION (APP)
DATE LAST INSPECTION: 7/11/2011		COMPLIANCE PERIOD: 1/1/2015 - 12/31/2015
EVALUATION COMPLETED BY: TRACY BUNCH		PHONE: 602-771-4571

OVERALL COMPLIANCE STATUS GENERAL STATEMENT

The following is the valuation of the compliance status for the above named facility. Please note that the compliance status of a facility may change based upon subsequent monitoring results or a facility inspection. This compliance review is based on information available as of the date of this document.

COMMENTS:

Review of the APP reporting requirement and monitoring results that have been submitted for this period indicate that the facility self-reported no monitoring and reporting violations:

COMPLIANCE REVIEW: Check All That Apply

<input type="checkbox"/>	Self-Monitoring Report Form Deficiencies (APP)	<input type="checkbox"/>	Notice of Opportunity to Correct
<input type="checkbox"/>	Self-Monitoring report Form Missing Parameter (APP)	<input type="checkbox"/>	Notice of Violation
<input type="checkbox"/>	Self-Monitoring Report Form Discharge Limit Exceedances (APP)	<input type="checkbox"/>	Administrative Order
<input type="checkbox"/>	Discharge Monitoring Report Form Missing Parameters (AZPDES)	<input type="checkbox"/>	Consent Judgement
<input type="checkbox"/>	Discharge Monitoring Report Form Deficiencies (AZPDES)	<input type="checkbox"/>	Other
<input type="checkbox"/>	Discharge Monitoring Report Form Exceedances(AZPDES)		
<input type="checkbox"/>	Late Submittal		
<input type="checkbox"/>	Non-Submittals		

COMPLIANCE REVIEW: Check All That Apply

<input checked="" type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determined that as of this date the facility was currently in compliance for the review period noted above.
<input type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determined that as of this date the facility was not in violation at a level at which ADEQ would take an action or issue a Notice of Opportunity to Correct or Notice of Violation and/or is in compliance with the Order/Judgement for the review period noted above.
<input type="checkbox"/>	Based upon the data submitted by the facility for the review period noted above, ADEQ cannot determine a compliance status until the facility corrects missing and /or deficient data.
<input type="checkbox"/>	Based upon the data submitted by the facility, ADEQ has determine this facility was not in compliance with its permit(s), wastewater regulation, and/or Order/Judgement for the review period above.

2) Major Plant In Service Inventory

COMPANY NAME	EPCOR WATER		
Name of System: Agua Fria	Wastewater Inventory Number (if applicable):	105229	

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITIES

TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	Russell Ranch Water Reclamation Facility: Activated Sludge, BNR		
DESIGN CAPACITY OF PLANT (Gallons Per Day)	Russell Ranch	60,000	

LIFT STATION FACILITIES

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity (gals)

FORCE MAINS

Size	Material	Length (in feet)

MANHOLES

CLEANOUTS

Type	Quantity	Quantity
Standard	105	10

COMPANY NAME	EPCOR WATER	
Name of System: Agua Fria	Wastewater Inventory Number (if applicable):	105229

WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

COLLECTION MAINS

Size (in inches)	Material	Length (in feet)
4	n/a	
6	PVC	
8	PVC	29,894
10	PVC	949
12	PVC	81
15	PVC	
18	PVC	
21	PVC	
24	PVC	
30	PVC	
Undetermined	PVC	
	TOTAL =	30,924

SERVICES

Size (in inches)	Material	Quantity
4	n/a	n/a
6	n/a	n/a
8	n/a	n/a
12	n/a	n/a
15	n/a	n/a

For the following three items, list the utility owned assets in each category.

SOLIDS PROCESSING AND HANDLING FACILITIES	Russell Ranch: Aerobic Digester, Vault and Haul
DISINFECTION EQUIPMENT (Chlorinator, Ultra-Violet, Etc.)	Russell Ranch: 1 NaOCl pump, 1 dechlor (NaHSO ₃ pump)
FILTRATION EQUIPMENT (Rapid Sand, Slow Sand, Activated Carbon, Etc.)	
STRUCTURES (Buildings, Fences Etc)	Russell Ranch: Storage shed, block fence around entire perimeter of property
OTHER Laboratory Equipment, Tools, Vehicles, Standby Power Generators, Etc.	Various tools and equipment associated with wastewater collection and treatment. Russell Ranch: 275 kW standby generator

COMPANY NAME		EPCOR WATER
Name of System: Agua Fria	Wastewater Inventory Number (if applicable):	105229

WASTEWATER FLOWS

MONTH/YEAR	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW (MG)	SEWAGE FLOW ON PEAK DAY (MG)
JANUARY	212	0.936	0.057
FEBRUARY	210	0.856	0.046
MARCH	211	1.019	0.052
APRIL	210	0.896	0.040
MAY	212	0.906	0.043
JUNE	212	0.757	0.039
JULY	212	0.802	0.047
AUGUST	210	0.839	0.038
SEPTEMBER	209	0.862	0.049
OCTOBER	212	0.960	0.034
NOVEMBER	210	0.950	0.048
DECEMBER	213	0.873	0.033

TOTALS -> 10.656

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)	Reuse and recharge
Wastewater Inventory Number (all wastewater systems are assigned an inventory number) Russell Ranch	105229
Groundwater Permit Numbers	
EQ Aquifer Protection Permit Number Russell Ranch	P-105229
ADEQ Reuse Permit Number Russell Ranch	N/A
EPA NPDES Permit Number	N/A

COMPANY NAME	EPCOR WATER
Name of System: Agua Fria	Wastewater Inventory Number (if applicable): 105202

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITIES

TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	Verrado Water Reclamation Facility: Activated Sludge, BNR
DESIGN CAPACITY OF PLANT (Gallons Per Day) (Gallons Per Day)	Verrado 830,000

LIFT STATION FACILITIES

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity (gals)
Verrado High School Lift Station	2	15	217	5,828
Banner Lift Station	2	40	433	19,377

FORCE MAINS

Size	Material	Length (in feet)
4 inch	Ductile Iron	2,134
6 inch	Ductile Iron	2,235
8 inch	Ductile Iron	7,551

MANHOLES

CLEANOUTS

Type	Quantity	Quantity
Standard	1,760	106
Drop		

COMPANY NAME	EPCOR WATER	
Name of System: Agua Fria	Wastewater Inventory Number (if applicable):	105202

WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

COLLECTION MAINS

Size (in inches)	Material	Length (in feet)
4	n/a	
6	PVC	255
8	PVC	278,856
10	PVC	8,213
12	PVC	9,670
15	PVC	5,548
16	PVC	350
18	PVC	7,811
21	PVC	9,866
24	PVC	
30	PVC	
Undetermined	PVC	6
	TOTAL =	320,575

SERVICES

Size (in inches)	Material	Quantity
4	n/a	n/a
6	n/a	n/a
8	n/a	n/a
12	n/a	n/a
15	n/a	n/a

For the following three items, list the utility owned assets in each category.

SOLIDS PROCESSING AND HANDLING FACILITIES	Verrado: Aerobic Digester, Belt Filter Press
DISINFECTION EQUIPMENT (Chlorinator, Ultra-Violet, Etc.)	Verrado: 1-700 gal NaOCl tank, 2 NaOCl pumps
FILTRATION EQUIPMENT (Rapid Sand, Slow Sand, Activated Carbon, Etc.)	Verrado: 4 Disc Filter Units (10 micron)
STRUCTURES (Buildings, Fences Etc)	Verrado: Administrative Modular Trailer, Dewatering building, Motor Control building, Shop building, block fence around entire perimeter of property
OTHER Laboratory Equipment, Tools, Vehicles, Standby Power Generators, Etc.	Various tools and equipment associated with wastewater collection and treatment. Verrado: 750 kW ad 2,000 kW on site standby Generators, 4 work trucks

COMPANY NAME	EPCOR WATER	
Name of System: Agua Fria	Wastewater Inventory Number (if applicable):	105202

WASTEWATER FLOWS

MONTH/YEAR	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW (MG)	SEWAGE FLOW ON PEAK DAY (MG)
JANUARY	2,804	10.858	0.431
FEBRUARY	2,804	10.113	0.408
MARCH	2,804	11.484	0.437
APRIL	2,804	10.520	0.393
MAY	2,804	10.797	0.403
JUNE	2,886	9.858	0.367
JULY	2,935	9.902	0.360
AUGUST	2,956	10.837	0.386
SEPTEMBER	2,979	10.431	0.406
OCTOBER	2,959	11.562	0.429
NOVEMBER	3,052	11.844	0.465
DECEMBER	3,072	11.986	0.429

TOTALS ->

130.192

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)		Reuse and recharge
Wastewater Inventory Number (all wastewater systems are assigned an inventory number)	Verrado	105202
Groundwater Permit Numbers	Verrado	USF 71-207708.0000
Aquifer Protection Permit Number	Verrado	P-105202
ADEQ Reuse Permit Number	Verrado	N/A
EPA NPDES Permit Number		N/A

COMPANY NAME	EPCOR WATER
Name of System: NE Agua Fria	Wastewater Inventory Number (if applicable): 102667

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITIES

TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
DESIGN CAPACITY OF PLANT (Gallons Per Day)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)

LIFT STATION FACILITIES

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity (gals)
NE Agua Fria Lift Station 1 (Corte Bella)	2	35	1,760	55,600

FORCE MAINS

Size	Material	Length (in feet)
18"	Various	8,859

MANHOLES

CLEANOUTS

Type	Quantity	Quantity
Standard	1,073	47

COMPANY NAME	EPCOR WATER	
Name of System: NE Agua Fria	Wastewater Inventory Number (if applicable):	102667

WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

COLLECTION MAINS

Size (in inches)	Material	Length (in feet)
4	n/a	
6	PVC	49
8	PVC	192,160
10	PVC	14,318
12	PVC	18,965
15	PVC	13,700
18	PVC	24,768
21	PVC	
24	PVC	
30	PVC	
Undetermined	PVC	
	TOTAL =	263,960

SERVICES

Size (in inches)	Material	Quantity
4	n/a	n/a
6	n/a	n/a
8	n/a	n/a
12	n/a	n/a
15	n/a	n/a

For the following three items, list the utility owned assets in each category.

SOLIDS PROCESSING AND HANDLING FACILITIES	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
DISINFECTION EQUIPMENT (Chlorinator, Ultra-Violet, Etc.)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
FILTRATION EQUIPMENT (Rapid Sand, Slow Sand, Activated Carbon, Etc.)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
STRUCTURES (Buildings, Fences Etc)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
OTHER Laboratory Equipment, Tools, Vehicles, Standby Power Generators, Etc.	Refer to the Northwest Valley Regional Water Reclamation Facility (page)

COMPANY NAME	EPCOR WATER
Name of System: NE Agua Fria	Wastewater Inventory Number (if applicable): 102667

WASTEWATER FLOWS

MONTH/YEAR	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW (MG)	SEWAGE FLOW ON PEAK DAY (MG)
JANUARY	3,549	13.328	0.624
FEBRUARY	3,610	12.202	0.492
MARCH	3,657	13.763	0.518
APRIL	3,734	12.801	0.504
MAY	3,789	12.272	0.468
JUNE	3,799	11.042	0.414
JULY	3,819	11.253	0.412
AUGUST	3,860	11.927	0.458
SEPTEMBER	3,838	11.960	0.468
OCTOBER	3,943	12.861	0.484
NOVEMBER	3,918	13.665	0.536
DECEMBER	3,939	14.098	0.508
TOTALS ->		151.172	

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)	Ground Water Recharge
Wastewater Inventory Number (all wastewater systems are assigned an inventory number)	102667
Groundwater Permit Numbers	N/A
ADEQ Aquifer Protection Permit Number	P-102667
ADEQ Reuse Permit Number	N/A
EPA NPDES Permit Number	N/A

COMPANY NAME	EPCOR WATER	
Name of System: NVRWRF	Wastewater Inventory Number (if applicable):	102667

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITY

TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	Northwest Valley Regional Water Reclamation Facility (formerly Sun City West WRF) Activated sludge, BNR w/ DN filtration
DESIGN CAPACITY OF PLANT (gallons Per Day)	5,000,000

LIFT STATION FACILITIES

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity(gals)

FORCE MAINS

Size	Material	Length (in feet)

MANHOLES

CLEANOUTS

Type	Quantity	Quantity

COMPANY NAME	EPCOR WATER	
Name of System: NVRWRF	Wastewater Inventory Number (if applicable):	102667

WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

COLLECTION MAINS

Size (in inches)	Material	Length (in feet)
TOTALS =		0

SERVICES

Size (in inches)	Material	Quantity

For the following three items, list the utility owned assets in each category.

SOLIDS PROCESSING AND HANDLING FACILITIES	Aerobic Digesters (3), Belt pressed sludge is hauled to landfill
DISINFECTION EQUIPMENT	Hypochlorite injections at filter effluent ad Sodium Bisulfate dechlorination at discharge weir.
FILTRATION EQUIPMENT (Rapid Sand, Slow Sand, Activated Carbon, Etc.)	Rapid sand filter
STRUCTURES (Buildings, Fences, Etc.)	Admin/Maintenance/Control Building, Solids Handling Building, Blower Buildin at Treatment Plant; VFD/Control Building at Bell Road Lift Station
OTHER Laboratory Equipment, Tools, Vehicles, Standby Power Generators, Etc.	Various tools and equipment associated with wastewater collection

COMPANY NAME	EPCOR WATER	
Name of System: NVRWRF	Wastewater Inventory Number (if applicable):	102667

WASTEWATER FLOWS

MONTH/YEAR	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW (MG)	SEWAGE FLOW ON PEAK DAY (MG)
JANUARY	18,563	73.880	3.455
FEBRUARY	18,621	67.245	2.658
MARCH	18,655	74.233	2.683
APRIL	18,677	69.420	2.638
MAY	18,701	62.739	2.273
JUNE	18,702	56.977	2.054
JULY	18,721	57.633	1.988
AUGUST	18,770	59.090	2.057
SEPTEMBER	18,748	59.866	2.129
OCTOBER	18,915	65.655	2.419
NOVEMBER	18,924	69.010	2.455
DECEMBER	18,964	70.992	2.451
TOTALS ->		786.740	

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)	Ground Water Recharge
Wastewater Inventory Number (all wastewater systems are assigned an inventory number)	102667
Groundwater Permit Numbers	N/A
ADEQ Aquifer Protection Permit Number	P-102667
ADEQ Reuse Permit Number	N/A
EPA NPDES Permit Number	N/A

COMPANY NAME	EPCOR WATER	
Name of System: Anthem	Wastewater Inventory Number (if applicable):	103259

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITIES

TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	Extended aeration with anoxic zone and Zenon microfiltration system
DESIGN CAPACITY OF PLANT (Gallons Per Day)	3,000,000

LIFT STATION FACILITIES

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity (gals)
Influent Lift Station (Pump #1)	1	30	2,932	
Influent Lift Station (Pump #2)	1	50	3,800	
Influent Lift Station (Pumps 3 and 4)	2	25	3,200	9,700
Reject Water Lift Station	2	20	1,400	6,500
Panhandle 1 Lift Station	2	7.5	494	5,000
Panhandle 2 Lift Station	2	23	500	5,000
Panhandle 3 Lift Station	2	5	700	5,000

FORCE MAINS

Size	Material	Length (in feet)
4 inch	Ductile Iron	5,802
6 inch	Ductile Iron	5,394
8 inch	Ductile Iron	81

MANHOLES

CLEANOUTS

Type	Quantity	Quantity
Standard	1,991	224

COMPANY NAME	EPCOR WATER	
Name of System: Anthem	Wastewater Inventory Number (if applicable):	103259

WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

COLLECTION MAINS		
Size (in inches)	Material	Length (in feet)
4	n/a	986
6	PVC	5,561
8	PVC	428,690
10	PVC	28,211
12	PVC	22,644
15	PVC	3,225
18	PVC	9,933
21	PVC	2,171
24	PVC	2,218
30	PVC	
Undetermined	PVC	2,729
TOTAL =		506,367

SERVICES		
Size (in inches)	Material	Quantity
4	n/a	n/a
6	n/a	n/a
8	n/a	n/a
12	n/a	n/a
15	n/a	n/a

For the following three items, list the utility owned assets in each category.

SOLIDS PROCESSING AND HANDLING FACILITIES	Belt filter press, 1.5 meter belt
DISINFECTION EQUIPMENT (Chlorinator, Ultra-Violet, Etc.)	UV or Chlorine (NaOCl) injection with chlorine contact chamber
FILTRATION EQUIPMENT (Rapid Sand, Slow Sand, Activated Carbon, Etc.)	Zenon Zee-Weed 500 microfiltration system
STRUCTURES (Buildings, Fences Etc)	Common administration building shared with water plant, headworks building, process building, solids building, perimeter wall. One 1,000,000 gallon non-potable/reclaimed water storage reservoir
OTHER Laboratory Equipment, Tools, Vehicles, Standby Power Generators, Etc.	Various tools and equipment associated with wastewater collection and treatment. 2,000 kW generator, three lift station generators, Panhandle 1- 50 kW, Panhandle 2- 60 kW, Pandhandle 3- 80 kW

COMPANY NAME	EPCOR WATER
Name of System: Anthem	Wastewater Inventory Number (if applicable): 103259

WASTEWATER FLOWS

MONTH/YEAR	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW (MG)	SEWAGE FLOW ON PEAK DAY (MG)
JANUARY	8,772	51.100	1.818
FEBRUARY	8,782	46.473	1.787
MARCH	8,772	51.420	1.803
APRIL	8,790	49.561	1.786
MAY	8,801	47.526	1.739
JUNE	8,788	44.334	1.603
JULY	8,797	44.426	1.517
AUGUST	8,806	47.800	1.692
SEPTEMBER	8,806	46.115	1.667
OCTOBER	8,812	48.819	1.695
NOVEMBER	8,823	49.344	1.845
DECEMBER	8,822	50.414	1.737
TOTALS ->		577.332	

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)	Reuse and recharge
Wastewater Inventory Number (all wastewater systems are assigned an inventory number)	103259
Groundwater Permit Numbers	N/A
Q Aquifer Protection Permit Number	P-103259
ADEQ Reuse Permit Number	R-103259
EPA NPDES Permit Number	AZ0025429

COMPANY NAME	EPCOR WATER
Name of System: Mohave Arizona Gateway	Wastewater Inventory Number (if applicable):

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITY

TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	Extended Aeration, San-Tec plant
DESIGN CAPACITY OF PLANT gallons Per Day	112,000 (Arizona Gateway Treatment Plant)

LIFT STATION FACILITIES

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity(gals)
Effluent Lift pump	1	1.4	70	
Influent Lift Station (Pilot)	2	8	40	
35 KW Generator (Pilot)	1			

FORCE MAINS

Size	Material	Length (in feet)

MANHOLES

CLEANOUTS

Type	Quantity	Quantity
Standard	8	
Drop		

COMPANY NAME	EPCOR WATER
Name of System: Mohave Arizona Gateway	Wastewater Inventory Number (if applicable):

WASTEWATER FLOWS

MONTH/YEAR	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW (MG)	SEWAGE FLOW ON PEAK DAY (MG)
JANUARY	10	0.257	0.016
FEBRUARY	10	0.224	0.011
MARCH	10	0.280	0.012
APRIL	10	0.242	0.012
MAY	10	0.245	0.011
JUNE	10	0.227	0.011
JULY	10	0.269	0.012
AUGUST	10	0.246	0.011
SEPTEMBER	10	0.225	0.011
OCTOBER	10	0.251	0.012
NOVEMBER	10	0.245	0.011
DECEMBER	10	0.478	0.022
TOTALS ->		3.189	

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)	Evaporation Ponds
Wastewater Inventory Number (all wastewater systems are assigned an inventory number)	Place ID # 16067 LTF # 31789
Groundwater Permit Numbers	N/A
ADEQ Aquifer Protection Permit Number	P-105010
ADEQ Reuse Permit Number	N/A
EPA NPDES Permit Number	N/A

COMPANY NAME	EPCOR WATER		
Name of System: Mohave Wishing Well	Wastewater Inventory Number (if applicable):	38-158	

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITY

TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	Extended aeration, trickling filter
DESIGN CAPACITY OF PLANT gallons Per Day	500,000 (Wishing Well Treatment Plant)

LIFT STATION FACILITIES

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity(gals)
Mountain View Drive	2	7.5	114	2,100
Lago Cove	2	3	17	1,000
Greens @ Los Lagos	2	15	326	4,650

FORCE MAINS

Size	Material	Length (in feet)
4"		2,511
6"		8,157

MANHOLES

CLEANOUTS

Type	Quantity	Quantity
Standard	523	23

COMPANY NAME	EPCOR WATER	
Name of System: Mohave Wishing Well	Wastewater Inventory Number (if applicable):	38-158

WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

COLLECTION MAINS

Size (in inches)	Material	Length (in feet)
4	n/a	
6	PVC	8,617
8	PVC	123,140
10	PVC	1,654
12	PVC	
15	n/a	6,160
18	n/a	
21	n/a	
24	n/a	
	TOTAL =	139,570

SERVICES

Size (in inches)	Material	Quantity
4	n/a	
6	n/a	
8	n/a	
12	n/a	
15	n/a	
	TOTAL =	0

For the following three items, list the utility owned assets in each category.

SOLIDS PROCESSING AND HANDLING FACILITIES	Sludge press
DISINFECTION EQUIPMENT (Chlorinator, Ultra-Violet, Etc.)	Chlorinator
FILTRATION EQUIPMENT (Rapid Sand, Slow Sand, Activated Carbon, Etc.)	Slow sand
STRUCTURES (Buildings, Fences Etc)	600' chain link fence, building with lab, chlorine building
OTHER Laboratory Equipment, Tools, Vehicles, Standby Power Generators, etc.	150 KW Cat gen-set, miscellaneous lab equipment, influent meter, effluent meter. Effluent pump.

COMPANY NAME	EPCOR WATER
Name of System: Mohave Wishing Well	Wastewater Inventory Number (if applicable): 38-158

WASTEWATER FLOWS

MONTH/YEAR	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW (MG)	SEWAGE FLOW ON PEAK DAY (MG)
JANUARY	1,523	7.085	0.238
FEBRUARY	1,521	6.248	0.235
MARCH	1,522	7.108	0.259
APRIL	1,522	6.681	0.228
MAY	1,514	6.433	0.207
JUNE	1,517	6.300	0.195
JULY	1,516	6.000	0.199
AUGUST	1,495	6.642	0.202
SEPTEMBER	1,520	5.694	0.190
OCTOBER	1,539	6.502	0.222
NOVEMBER	1,547	6.841	0.248
DECEMBER	1,551	7.138	0.253

TOTALS ->

78.672

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)	Re-use
Wastewater Inventory Number (all wastewater systems are assigned an inventory number)	Place ID # 1784 LTF # 43063
Groundwater Permit Numbers	N/A
ADEQ Aquifer Protection Permit Number	P-102181
ADEQ Reuse Permit Number	N/A
EPA NPDES Permit Number	N/A

COMPANY NAME	EPCOR WATER
Name of System: Sun City	Wastewater Inventory Number (if applicable): 100339

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITY

TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	Treated by the City of Tolleson under a long-term contract
DESIGN CAPACITY OF PLANT (gallons Per Day)	N/A

LIFT STATION FACILITIES

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity (gals)
Baptist Village L.S. 11577 W Peoria Ave	2	7.5	100	1,700
Youngtown L.S. 11602 W Peoria Ave	2	70	1200	7,520
111th Ave L.S. 111th Avenue at Olive	2	3	160	1,000
Coyote Lakes L.S. 17280 N 115th Ave	2	40	500	7,000
Citrus Point L.S. 16401 N 115th Ave	2	20	500	1,200
Paradise Resort L.S. 10950 W Union Hills	2	7.5	700	7,900
Agua Fria Ranch L.S. 9901 N Agua Fria Pkwy	2	30	860	6,033

FORCE MAINS

Size	Material	Length (in feet)
4 inch	Various	2,945
6 inch	Various	2,047
8 inch	Various	16,888
10 inch	Various	6,417
12 inch	Various	18,525

MANHOLES

CLEANOUTS

Type	Quantity	Quantity
Standard	4,595	739
Drop		

COMPANY NAME	EPCOR WATER	
Name of System: Sun City	Wastewater Inventory Number (if applicable):	100339

WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

COLLECTION MAINS

Size (in inches)	Material	Length (in feet)
4	Various	527
6	Various	10,061
8	Various	1,286,767
10	Various	69,023
12	Various	28,392
15	Various	16,263
18	Various	10,415
21	Various	9,377
24	Various	
27	Various	1,301
30	Various	2,977
33	Various	861
36	Various	854
Undetermined	Various	7,800
	TOTAL =	1,444,618

SERVICES

Size (in inches)	Material	Quantity
4	n/a	n/a
6	n/a	n/a
8	n/a	n/a
12	n/a	n/a
15	n/a	n/a

For the following three items, list the utility owned assets in each category.

SOLIDS PROCESSING AND HANDLING FACILITIES	N/A
DISINFECTION EQUIPMENT (Chlorinator, Ultra-Violet, etc.)	N/A
FILTRATION EQUIPMENT (Rapid Sand, Slow Sand, Activated Carbon, etc.)	N/A
STRUCTURES (Buildings, Fences Etc)	N/A
OTHER Laboratory Equipment, Tools, Vehicles, Standby Power Generators, Etc.	99th Avenue metering station, various tools and equipment associated with wastewater collection

COMPANY NAME		EPCOR WATER
Name of System: Sun City	Wastewater Inventory Number (if applicable):	100339

WASTEWATER FLOWS

MONTH/YEAR	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW (MG)	SEWAGE FLOW ON PEAK DAY (MG)
JANUARY	22,214	109.966	5.348
FEBRUARY	22,214	102.791	4.012
MARCH	22,225	112.778	4.015
APRIL	22,208	100.685	4.527
MAY	22,218	92.359	4.009
JUNE	22,188	84.355	3.343
JULY	22,187	86.698	3.427
AUGUST	22,199	90.372	3.470
SEPTEMBER	22,199	87.100	3.007
OCTOBER	22,240	94.110	4.009
NOVEMBER	22,260	97.120	4.009
DECEMBER	22,246	101.441	4.009
TOTALS ->		1,159.775	

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)	N/A
Wastewater Inventory Number (all wastewater systems are assigned an inventory number)	100339
Groundwater Permit Numbers	N/A
ADEQ Aquifer Protection Permit Number	N/A
ADEQ Reuse Permit Number	N/A
EPA NPDES Permit Number	N/A

COMPANY NAME	EPCOR WATER
Name of System: Sun City West	Wastewater Inventory Number (if applicable): 102667

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITY

TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
DESIGN CAPACITY OF PLANT (gallons Per Day)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)

LIFT STATION FACILITIES

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity(gals)
Bell Road L.S. Bell Rd & El Mirage	4	250	2,800	49,400

FORCE MAINS

Size	Material	Length (in feet)
18 inch	ACP	18,523

MANHOLES

CLEANOUTS

Type	Quantity	Quantity
Standard	2,710	416

COMPANY NAME	EPCOR WATER	
Name of System: Sun City West	Wastewater Inventory Number (if applicable):	102667

WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

COLLECTION MAINS

Size (in inches)	Material	Length (in feet)
4	Various	1,188
6	Various	2,718
8	Various	833,064
10	Various	23,533
12	Various	18,832
15	Various	20,052
18	Various	19,667
21	Various	5,940
24	Various	2,447
27	Various	
30	Various	
33	Various	
36	Various	2,632
Undetermined	Various	711
	TOTALS =	930,784

SERVICES

Size (in inches)	Material	Quantity
4	n/a	n/a
6	n/a	n/a
8	n/a	n/a
12	n/a	n/a
15	n/a	n/a

For the following three items, list the utility owned assets in each category.

SOLIDS PROCESSING AND HANDLING FACILITIES	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
DISINFECTION EQUIPMENT Chlorinator, Ultra-Violet, Etc.)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
FILTRATION EQUIPMENT (Rapid Sand, Slow Sand, Activated Carbon, Etc.)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
STRUCTURES (Buildings, Fences, Etc.)	Refer to the Northwest Valley Regional Water Reclamation Facility (page)
OTHER Laboratory Equipment, Tools, Vehicles, Standby Power Generators, Etc.	Refer to the Northwest Valley Regional Water Reclamation Facility (page)

COMPANY NAME	EPCOR WATER
Name of System: Sun City West	Wastewater Inventory Number (if applicable): 102667

WASTEWATER FLOWS

MONTH/YEAR	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW (MG)	SEWAGE FLOW ON PEAK DAY (MG)
JANUARY	15,014	60.552	2.831
FEBRUARY	15,011	55.043	2.105
MARCH	14,998	60.470	2.203
APRIL	14,943	56.619	2.149
MAY	14,912	50.467	1.825
JUNE	14,903	45.935	1.646
JULY	14,902	46.380	1.616
AUGUST	14,910	47.163	1.647
SEPTEMBER	14,910	47.906	1.701
OCTOBER	14,972	52.794	1.947
NOVEMBER	15,006	55.345	1.989
DECEMBER	15,025	56.894	1.973

TOTALS -> 635.568

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)	Ground Water Recharge
Wastewater Inventory Number (all wastewater systems are assigned an inventory number)	102667
Groundwater Permit Numbers	N/A
ADEQ Aquifer Protection Permit Number	P-102667
ADEQ Reuse Permit Number	N/A
EPA NPDES Permit Number	N/A

3) Curtailment Tariff
and
Cross Connection/Backflow Tariff

EPCOR WATER COMPANY
Item 3 - Curtailment and Cross Connection-Backflow Tariffs

EPCOR Water Arizona's curtailment tariffs for all its districts were filed on October 12, 2007 in compliance with Decision No. 67093. The tariffs were approved by the Commission Staff and became effective on October 24, 2007.

EPCOR Water Arizona's cross-connection control tariffs for all its districts were recently revised to reflect the most recent Commission rules and were administratively approved by the Commission June 16, 2013. The approved tariffs are on file with the Commission.

Curtailment and Cross Connection-Backflow Tariffs are not applicable to the wastewater districts. They apply only to the water districts.

Bradford Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
TOM FORESE
BOB BURNS
ANDY TOBIN

IN THE MATTER OF THE APPLICATION
OF EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT
FAIR VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR
INCREASES/DECREASES IN ITS RATES
AND CHARGES BASED THEREON FOR
UTILITY SERVICE BY ITS AGUA FRIA,
ANTHEM, MOHAVE, SUN CITY, AND SUN
CITY WEST WASTEWATER DISTRICTS
AND FOR CONSIDERATION OF
CONSOLIDATION AND DE-
CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
SHAWN BRADFORD
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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1 **EXECUTIVE SUMMARY**

2 Shawn Bradford describes the Company's support for full consolidation of its wastewater
3 districts. Mr. Bradford explains the benefits of consolidation to the Company's
4 customers and the future capital plans for the Company's wastewater districts. Mr.
5 Bradford also describes the result of an ASU study commissioned by the Company
6 analyzing the demographics of the Company's wastewater districts and the impact of
7 wastewater rates on those customers.

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE**
3 **NUMBER.**

4 A. My name is Shawn Bradford. My business address is 2355 W. Pinnacle Peak
5 Road, Suite 300, Phoenix, Arizona 85027, and my business phone is (623) 815-
6 3136.

7 **Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?**

8 A. I am employed by EPCOR Water (USA) Inc. ("EWUS"), the owner of EPCOR
9 Water Arizona Inc. ("EWAZ" or "Company"), as the Vice President of Corporate
10 Services.

11 **Q. PLEASE DESCRIBE YOUR PRIMARY RESPONSIBILITIES FOR THE**
12 **COMPANY.**

13 A. My primary responsibilities for EWUS include the management of the Customer
14 Care & Billing, Public & Government Affairs, Information Technology and the
15 Rates & Regulatory Departments.

16 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND**
17 **EDUCATION.**

18 A. I have been employed by EWUS since February 1, 2012. Prior to EWUS's
19 acquisition of the American Water operations in Arizona and New Mexico, I
20 worked for Arizona-American Water beginning in fall 2011.

21 I have over 28 years of experience in the water and wastewater industry, with
22 experience at all levels, including management, operations, and maintenance.
23 Prior to my current position with EWUS as the Vice President of Corporate

Services, I served as the Director of Operations for the Central Division with EWAZ and was responsible for over 81,000 water and 45,000 sewer connections in the Sun City, Sun City West, and Agua Fria Districts.

I possess an MBA with a focus on Strategic Leadership from Amberton University as well as a Bachelor of Science Degree in Management from Becker College and an Associate's Degree in Environmental Engineering from Northeastern University.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. The purpose of my direct testimony is to provide support for the Company's position regarding full consolidation of its wastewater systems.

III. FULL CONSOLIDATION

Q. DOES EWAZ CONTINUE TO SUPPORT FULL CONSOLIDATION OF ITS WASTEWATER DISTRICTS?

A. Yes, as it did in the prior proceeding, EWAZ continues to support full consolidation of its wastewater districts as the best long-term solution to address the concerns raised by its customers, but more importantly as the most equitable long-term approach for establishing reasonable rates to recover the reasonable expenses and capital expenditures that will ultimately impact every district at some point in the future. In the long term, all wastewater customers will benefit from predictable, uniform rate structures, reduced regulatory expenses and increased efficiencies. Moving to a consolidated district with a single rate structure mirrors what consumers experience in most municipal districts and with many large gas and electric utilities. In other words, rates are the same regardless of

1 where a customer lives within a municipal area or within a utility's service
2 territory.

3 **Q. WHY DOES THE COMPANY CONSIDER THAT FULL**
4 **CONSOLIDATION IS JUSTIFIED?**

5 A. The Company would like to point out a number of observations related to its
6 wastewater systems.

- 7 1. Every residential customer of the Company, regardless of geographic location,
8 expects and is entitled to receive the same level of service.
- 9 2. Each class of customer in a district receives essentially the same service as a
10 corresponding class in another district.
- 11 3. Customers view themselves as being served by EPCOR Water and not as being
12 served by a specific operating district.
- 13 4. Because the existing rates for each district have been set on the basis of the
14 investment and expenses for each particular district, the wastewater rates vary
15 markedly from district to district. The disparity is, in part, the result of the
16 absence of economies of scale in the smaller districts, the disproportionate
17 effect imposed on the smaller districts by even routine investments (which
18 leads to rate shock), and by the episodic investment of capital in individual
19 districts.
- 20 5. Under the Company's organizational structure, many operational activities are
21 centralized. Billing, accounts payable, payroll, purchase of materials and
22 supplies, insurance and pension benefits, original entry accounting, public
23 affairs, liability insurance, personnel training, engineering, water quality,
24 budgeting, and rate case preparation are accomplished on a centralized basis.

6. Each of the five wastewater districts depends upon EWUS for its capital and debt financing. It is the Company, not the individual operating districts, that raises the capital necessary and, in turn, allocates it to the various districts.

Q. WHAT ARE THE PRIMARY BENEFITS OF FULL CONSOLIDATION?

A. Consolidation provides numerous benefits to customers, including the following:

1. Consolidation would be a long-term solution to eliminate disparity in rates;
2. Improves service affordability for customers;
3. Improved rate stability and elimination of rate shock;
4. Reduction in the number of rate cases and associated expenses;
5. Helps control costs associated with customer accounting and billing systems;
6. Supports the consolidation of small and troubled utilities;
7. Provides ratemaking treatment similar to that for other utilities;
8. Elimination of cost allocation issues between districts in rate filings;
9. Standardized service rates and charges across all districts;
10. Reduced customer confusion with respect to differing rate schedules among districts, which improves customer service efforts; and,
11. Lowers administrative costs for the Commission.

Most importantly, consolidation offers the best short- and long-term solutions for the issues that have been raised by many of the Company's customers. This includes the customers that have raised the issues that originally led to this proceeding as well as customers in other wastewater districts. In the long term, which is the timeframe that the Commission should examine, all customers will benefit. These customers will benefit as consolidation allows for the ability to make needed capital investments in smaller districts without imposing burdensome rate increases, as those costs are spread over the entire, consolidated

1 entity. Every EWAZ wastewater district does and will require needed
2 improvements, and as systems continue to age, these improvements will be costly.
3 On an individual district basis, however, those investments will occur in
4 significant amounts all at once as large projects are undertaken, with district-level
5 rate spikes resulting from the investment schedule. Unlike deconsolidation, in
6 which each district would be required to pay for the entire cost of an improvement
7 within that district regardless of its cost (and the smaller the customer base in the
8 district, the greater the proportionate increase), consolidation allows for all costs to
9 be spread over a greater number of customers.

10 **Q. SHOULD THE PROXIMITY OF THE DISTRICTS AND**
11 **INTERCONNECTION OF INFRASTRUCTURE BE THE SOLE**
12 **DETERMINANTS OF WHETHER CONSOLIDATION IS**
13 **APPROPRIATE?**

14 **A.** No. Although it is true that the physical infrastructure and treatment plants in
15 certain of the wastewater districts are separate from one another, this should not be
16 determinative in setting rates. Other major utilities, including electric utilities
17 (Arizona Public Service and Tucson Electric Power), natural gas utilities
18 (Southwest Gas) and telephone utilities (CenturyLink), have unified tariff
19 structures across Arizona even though they serve many different communities.
20 The same is true for large municipal water and wastewater utilities that serve
21 numerous neighborhoods within their municipal boundaries (City of Phoenix).
22 For example, if APS constructs a large facility in Phoenix or Flagstaff, the costs of
23 these facilities, while they may not directly benefit the entire service territory, are
24 spread over the entire customer base.

EWAZ also believes that, particularly with regard to wastewater, the geographical differences in service territory should not be an impediment to consolidation. It is rarely feasible for a large wastewater utility to serve all customers by one treatment plant. For example, the City of Phoenix has three wastewater treatment plants for the treatment of its citizens' wastewater. Ultimately, the benefits of a unified, consolidated rate structure outweigh any issues presented by consolidating geographically distinct service areas. Although cost causation is an important principle in ratemaking, it should not be the only determining factor. Taken to an extreme, each community or neighborhood could be required to pay for and install treatment plants to treat its wastewater. Under true cost causation, that community would bear the entire cost of the improvement. However, this approach eliminates the numerous efficiencies that arise out of full consolidation both operationally and administratively.

Q. HOW DO FUTURE IMPROVEMENTS IN THESE DISTRICTS IMPACT THE CONSOLIDATION ANALYSIS?

A. Over the next five years, EWAZ expects to spend over \$81.1 million on regular capital improvements for these five wastewater districts. This includes over \$31.8 million in Sun City, \$23.3 million in Sun City West, \$10.0 million in Anthem, \$14.1 million in Agua Fria and \$1.6 million in Mohave to improve lift stations, pumps, treatment facilities, collection mains and force mains.

EWAZ projects that over the next 10 years the total capital investment needed for the five wastewater districts will exceed \$163.2 million dollars. Table 1 summarizes EWAZ's projected capital investments from 2016-2025.

Table 1 – EWAZ’s Projected Capital Investment			
WW Districts	Capital Investment 2016-2020	Capital Investment 2021-2025	Capital Investment 2016-2025
Sun City Wastewater	\$31,876,996	\$25,367,456	\$57,244,452
Sun City West Wastewater	\$23,375,238	\$26,304,006	\$49,679,244
Agua Fria Wastewater	\$10,056,000	\$11,677,866	\$21,733,866
Anthem Wastewater	\$14,195,175	\$16,985,987	\$31,181,162
Mohave Wastewater	\$1,618,240	\$1,820,993	\$3,439,233
WW Consolidated	\$81,121,649	\$82,156,308	\$163,277,957

Consolidation will help smooth the rate impacts of future capital expenditures over the entire wastewater customer base. The investment amounts in each district will likely continue to increase annually over the longer term as the existing facilities continue to age.

Q. WON'T CERTAIN CUSTOMERS' RATES INCREASE AS A RESULT OF CONSOLIDATION?

A. Yes, by the very nature and activity of moving to one uniform rate from several varied rates you will have some increases and some decreases. As shown in the data provided as part of this filing, there is no question that certain districts would experience rate decreases in the short term from full consolidation and one district would experience a rate increase. Generally, these differences occur because of the relative size of the customer base in the respective districts or because the facilities that serve customers in one district are older and therefore cost less when they were installed many years ago, than newer facilities in another district. This, however, provides only a snapshot of the situation at this moment in time. Although the customers in the Sun City district will experience an increase in rates in the short term, it is important to note that the vast majority of collection system

1 infrastructure in Sun City was installed in the 1960s and 1970s, has reached or is
2 reaching the end of its useful life and will require the replacement as infrastructure
3 begins to fail. The 2013 Report Card issued by the American Society of Civil
4 Engineers graded the nation's wastewater infrastructure as a "D" and projected
5 that the capital investment needs for the nation's wastewater and stormwater
6 systems are estimated to total approximately \$300 billion over the next 20 years.

7 Over a period of years, all facilities will need to be replaced or upgraded as
8 they wear out or as new regulations affecting wastewater treatment are enacted.
9 When these new facilities are installed, they will inevitably be more expensive
10 than the ones they replace. Over time, districts that have older and less costly
11 facilities will see them replaced or expanded with newer and more costly facilities.
12 Without consolidated rates, the burden for these new, more costly facilities will
13 fall on the customers in that district alone, the implication being higher rates and
14 possible rate shock. In other words, just because a particular district has lower
15 rates today does not mean that those rates will remain low in the future.

16 **Q. WHAT OTHER BENEFITS ARE THERE FROM CONSOLIDATION?**

17 A. A single uniform rate structure provides the flexibility to make needed and
18 necessary investments in smaller districts while maintaining stable and affordable
19 rates for all customers. The Company's full consolidation proposal is
20 understandable, free from controversy over interpretation (i.e., will not lead to
21 confusion); and will lead to rate stability with more manageable increases in the
22 future for the Company's customers. Under consolidation, customers would
23 benefit from consolidation through stable and predictable rates, reduced regulatory
24 expenses, and increased operating efficiencies that will result from the economies

1 of scale of an integrated wastewater system. All EWAZ customers would be
2 recipients of the same level of service, regardless of geographic location, and
3 existing disparities for these services would be eliminated.

4 Consolidation will also lead to operating and administrative efficiencies.
5 For example, when rate cases must inevitably be filed to address capital
6 improvements and higher operating costs, the wastewater districts will be
7 combined and only one case will need to be filed and will resemble the
8 consolidated Arizona Wastewater district schedules that have been filed in this
9 rate case application. As such, the costs of processing the rate case will not only
10 be reduced for all parties including the Company's customers, the Commission
11 and the Residential Utility Consumer Office ("RUCO"), but the resulting cost per
12 customer will also be lower because any increases authorized by the Commission
13 will be spread over the entire customer base.

14 **Q. CAN THE COMPANY QUANTIFY THE EFFICIENCIES THAT**
15 **CONSOLIDATION WILL PROVIDE TO CUSTOMERS?**

16 A. As discussed earlier in my testimony, operating the wastewater districts as one
17 consolidated business unit versus the current structure where each wastewater
18 district is treated as a separate business unit will generate efficiencies. This
19 consolidation will result in the reduction and/or elimination of future expenses. In
20 an effort to quantify some of the reductions, we anticipate will be realized if full
21 consolidation is approved as part of this Application we have provided detail in
22 the following areas.

23 **Regulatory:** Operating each wastewater district on an individual basis
24 requires filing a separate rate case application for each district when the Company

1 seeks an increase in the authorized revenue for that district. It is important to note
2 that the Company makes every effort to bundle districts into larger rate filings to
3 help control costs but five stand-alone wastewater districts could result in separate
4 rate case applications for each district. Under consolidation, all of our wastewater
5 service area would be included in a single rate application which provides
6 tremendous economies of scale. For example, if you just count the number of
7 pages required to satisfy the Commission's Standard Filing Requirements per
8 district of approximately 100 pages per district and multiply that by five, the cost
9 of paper alone will experience an 80% decrease if the districts are consolidated!
10 Based on our previous experience, the costs associated with a single wastewater
11 district rate case requires approximately \$300,000 to \$400,000 of expense which,
12 if filed on an individual basis, would total \$1.5 million if all five districts were
13 filed separately. Under consolidation all five districts would cost approximately
14 \$600,000 to \$800,000 which would save roughly \$800,000 in future rate case
15 expense each time the Company sought a change in the amount of revenue we are
16 authorized to collect. This amount of savings would continue over time benefiting
17 all customers.

18 **Customer billing:** Each time a change in the rates that we charge our
19 customers needs to be implemented, a change in our billing system is required. If
20 five separate districts are maintained each time a district's rate is changed,
21 programming is needed in the customer care platform we currently use. These
22 changes include programming time to input and calculate the new rate, testing of
23 the new rate to ensure billing accuracy, bill print and design changes as well as
24 rate validation. On an individual basis, new rates require 100 to 120 hours of time.
25 The vendor we currently use to support our billing platform charges us a standard

1 rate of \$135/hour to make these changes. The costs per district on an individual
2 basis would be \$13,500 to \$16,200, which would total \$67,500 to \$81,000 if all
3 five districts were filed separately. Under consolidation the cost would be \$13,500
4 to \$16,200 which would avoid roughly \$74,000 in future expense each time the
5 Company sought a change in the amount of revenue we are authorized to collect.
6 This amount of savings would continue over time benefiting all customers.

7 **Customer communication:** As changes occur to the tariffs the Company is
8 authorized to charge our customers, two customer notifications are usually
9 required to explain the specifics of that individual district's charges and what may
10 be changing. While the cost to mail the notices would be similar under
11 consolidation the cost to design, proof and approve customer messages varies
12 based on the noticing requirements but costs typically range from \$1,500 to \$2,500
13 for each notice which would total approximately \$20,000 if all five districts
14 continue to have different tariffs. Under a consolidated rate tariff a single notice
15 would need to be created and delivered to our customers saving approximately
16 \$16,000 each time a change is made. This amount of savings would continue over
17 time benefiting all customers.

18 **Finance:** Maintaining the five existing wastewater districts as separate
19 business units is more expensive than a single business unit under consolidation.
20 The Company currently maintains separate general ledgers for each wastewater
21 district. If consolidation is approved, the Company would migrate all of the
22 existing financial data into a single chart of accounts which would simplify and
23 standardize all of the consolidated data and produce reports under one
24 consolidated financial statement. This would eliminate unnecessary complexities
25 and inconsistencies with five individual sets of accounting records. It would

1 streamline and optimize existing work processes by eliminating bottlenecks,
2 duplication of effort, and non-value added activities. Under a single consolidated
3 wastewater district, we estimate these savings at approximately \$56,000 annually.
4 I have provided detail on these costs in Exhibit SEB-1.

5 **Operations:** From an operational perspective, treating all five wastewater
6 districts as one under a consolidated structure can provide numerous efficiencies
7 to both the operation and administration of the wastewater districts. As an
8 example, operating the wastewater districts as a single business unit would
9 simplify and streamline the operational budgeting process and the administrative
10 paperwork associated with tracking costs for each individual district. When
11 infrastructure replacements are needed, a consolidated entity has greater flexibility
12 and fewer restrictions due to the potential for rate shock to its customers because
13 the impact of those investments are spread over a larger customer base. This is
14 especially true in the smaller districts where any amount of capital can have a
15 significant impact on rates due to the small customer base. Deferring capital
16 investment in smaller districts often can actually increase the cost if projects are
17 deferred beyond the useful life of the infrastructure. Quantifying these types of
18 operational efficiencies is a difficult exercise to perform especially since the
19 Company already optimizes its labor force over geographical areas and the supply
20 chain function already realizes economies of scale due to the nature of its
21 centralized contracting function. Additional operational efficiencies may exist but
22 should be evaluated and quantified once consolidation is in effect.

23 **Summary:** Based on our analysis of the benefits consolidation will bring to
24 all customers, we estimate that approximately \$946,000 will be saved annually or

as part of each rate cycle if consolidation is approved.¹ Table 2 is a summary of our analysis

Table 2 – Summary of Projected Savings	
<u>Function/Activity</u>	<u>Projected Savings</u>
Regulatory	\$ 800,000
Customer Billing	\$ 74,000
Customer Communication	\$ 16,000
Finance	\$ 56,000
Total projected savings from consolidation	\$ 946,000

Q. WHAT RATE IS THE COMPANY RECOMMENDING UNDER THE FULL CONSOLIDATION OPTION?

A. The Company is recommending that a consolidated rate be phased-in over three years for residential customers and a two year phase in for the commercial class which will lessen the immediacy of the rate impact and will provide a more gradual transition to a consolidated system. Once fully consolidated, EWAZ anticipates smaller future rate adjustments which follow the ratemaking principle of gradualism. Taking this approach also allows for a fully consolidated wastewater rate that is based on costs and capital improvements using a December 31, 2015 test year.

Q. CAN YOU PLEASE SUMMARIZE THE COMPANY'S PROPOSED RATE DESIGN?

¹ These, of course, are estimates and cannot be guaranteed given the dynamics of each rate case and the inevitable changes to the Company and its expenses over time.

A. The Company is proposing a phase-in of consolidated rates over a three-year period for the residential rate class and a two-year phase in for the commercial class of customers. Charges for residential class customers are summarized below in Table 3. The Company believes that the proposed phase-in will provide economies of scale to all customers and is the best long-term solution to address infrastructure needs moving forward.

Table 3 – EWAZ’s Proposed Residential Rate Design/Phase-in				
District	Stand-Alone Proposed Rates	Year 1 Phase-in	Year 2 Phase-in	Year 3 Phase-in
Sun City Wastewater	\$25.03	\$29.82	\$35.78	\$41.02
Sun City West Wastewater	\$42.00	\$42.00	\$41.02	\$41.02
Anthem Wastewater	\$61.48	\$54.89	\$47.76	\$41.02
Agua Fria Wastewater	\$76.09	\$65.65	\$53.83	\$41.02
Mohave Wastewater	\$89.44	\$68.00	\$51.74	\$41.02

IV. COMMUNITY CONSIDERATIONS

Q. PLEASE DESCRIBE SOME OF THE ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF THE COMPANY’S WASTEWATER DISTRICTS.

A. A demographic and economic analysis completed in a report that Arizona State University (ASU) prepared for EWAZ examined the five wastewater districts included in the rate application. This is included in my testimony as exhibit SEB-2. These are the Agua Fria, Anthem, Mohave, Sun City and Sun City West wastewater districts. Using detailed maps provided by EWAZ, each of the five wastewater districts’ Certificate of Convenience and Necessity (CC&N)

1 boundaries were initially matched to census tract level data from the 2010
2 Decennial Census. A census tract represents the most granular level of geographic
3 detail available that still provides a reasonable sample of households completing
4 the long-form census questionnaire.

5 The percent of the population age 65 and over in the EPCOR wastewater
6 service districts is well above the statewide average in four of the five districts.
7 Most notable are Sun City and Sun City West where the over-65 population is four
8 to six times the average for the state of Arizona. The level of this population (over
9 65), is also a third higher than the state average in the Agua Fria wastewater
10 service district, and almost 85% higher than the state average in the Mohave
11 district. Anthem is the only wastewater service district studied in which the
12 percent of the population 65 and over is below the statewide average.

13 Two of the EPCOR wastewater service districts, Agua Fria and Anthem,
14 are comprised of households with education, incomes and housing values that are
15 above the statewide average. Households in Anthem have a mean annual income
16 of \$95,500. That is 46% higher than the statewide income average of \$65,400.
17 Mean household income in the Agua Fria wastewater service district is \$90,600,
18 which is also above statewide averages. Mean household income in the Sun City
19 wastewater service district is \$44,600, which is only 68% as high as the statewide
20 average. Mean household income in the Mohave wastewater service district is
21 \$51,600, which is only 79% as high as the statewide average. Mean household
22 income in Sun City West wastewater service district is \$55,500 which is 85% as
23 high as the statewide average.

24 ASU's study also analyzed the overall cost of existing wastewater service
25 as a percentage of annual household income. According to ASU, even with an

1 annual income below the statewide average, the cost of 10,000 gallons of water
2 per month under the current wastewater tariff requires only 0.59% of the mean
3 Sun City household income. This is a lower burden for the mean household than
4 the state average of 0.62% and is due to the fact that EWAZ's existing wastewater
5 tariffs for Sun City are the lowest of *any* of the Arizona districts we serve and
6 among the very lowest in Arizona.

7 Customers in Agua Fria and Mohave currently pay a substantially higher
8 percentage of their household income. In Agua Fria, customers pay 1.14% of their
9 mean household income for wastewater service and Mohave is even higher at
10 2.06%. This is due to the smaller district size and relative age of infrastructure
11 versus Sun City or Sun City West. In numerous studies the EPA has established
12 that water and wastewater bills requiring less than a 2.5% share of household
13 income are considered affordable. Table 4 and the associated graph below details
14 comparative data of the wastewater bills in the Company's wastewater districts at
15 a water usage level of 10,000 gallons per month ("gpm") and the percentage of
16 income the wastewater bill represents in that district compared to the Arizona
17 statewide amounts.
18

1

Table 4 – Annualized Wastewater Bills as a Percent of Income (for consumption levels of 10,000 gallons per month)				
	Monthly Wastewater Bill (10,000 gpm)	Annual Wastewater Bill (10,000 gpm)	Mean Household Income	Annualized Wastewater Bill as % of Income
Agua Fria District	\$71.16	\$853.92	\$75,000	1.14
Anthem District	\$60.33	\$723.96	\$95,500	0.76
Mohave District*	\$78.53	\$766.08	\$45,800	2.06
Sun City District	\$22.11	\$265.32	\$44,600	0.59
Sun City West District	\$32.46	\$389.52	\$55,500	0.70
State of Arizona	\$38.42	\$461.04	\$65,400	0.70

2

*Mohave rate as of 9/1/17

3

**Q. DID THE COMPANY EVALUATE EXISTING RATES WITH THOSE
CHARGED IN PEER GROUPS FOR THE FIVE WASTEWATER
DISTRICTS?**

4

5

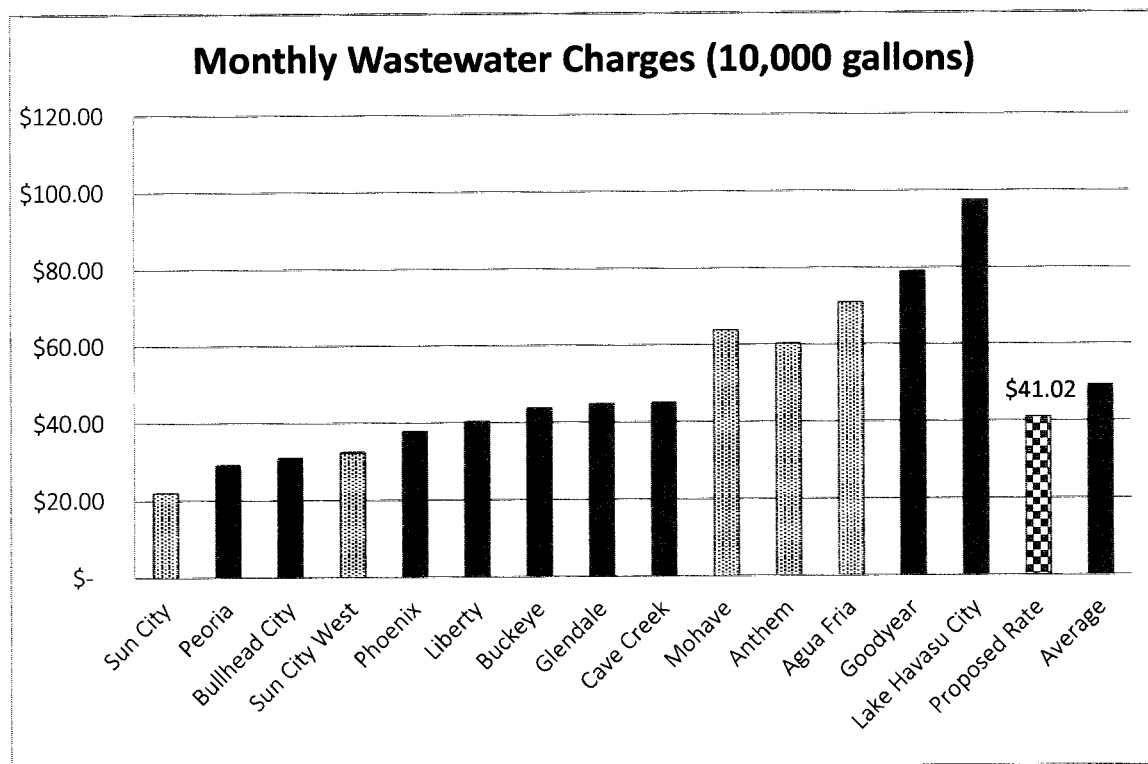
6

A. Yes, the ASU study assembled a peer group of other wastewater providers that are in the area for each wastewater district. The average monthly wastewater charge of the 14 utilities surveyed, including the EWAZ systems, was \$49.29 per month. The chart below summarizes the peer review.

7

8

9



1
2 **Q. WHAT IS THE FINANCIAL IMPACT OF CONSOLIDATION ON A**
3 **COMPANY-WIDE BASIS?**

4 A. Once the revenue requirement is updated to reflect the 2015 test year consolidation
5 on a Company-wide basis as proposed in this case by EWAZ, the financial impact
6 on the Company is revenue neutral. As discussed earlier in my testimony, there
7 are numerous tangible benefits that consolidation brings to all customers. The
8 Company believes that the long-term benefits for all customers under
9 consolidation outweigh any other considerations and we strongly urge the
10 Commission to approve our request.

11 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

12 A. Yes.

EXHIBIT SEB-1

EPCOR Water Arizona
Wastewater Consolidation - Agua Fria, Anthem, Mohave, Sun City, & Sun City West
Test Year Ended December 31, 2015

Wastewater Consolidation Efficiencies

Responsibility		Savings per Month (Hours)	Loaded Hourly Rate	\$ Savings
Sr Accountant	reconciliations (performed at legal entity level so minimal efficiency)	1.00	\$70.00	\$70.00
	Journal entry allocations	1.00	\$70.00	\$70.00
Acct II	regulatory annual and compliance reporting	3.00	\$70.00	\$210.00
	reconciliations (performed at legal entity level so minimal efficiency)	1.00	\$55.00	\$55.00
AP Specialist	regulatory annual and compliance reporting	3.00	\$55.00	\$165.00
	Invoice processing (minimal)	2.00	\$31.00	\$62.00
AP Specialist	Invoice processing (minimal)	2.00	\$31.00	\$62.00
PR Analyst	Payroll processing responsibilities would not change	-		\$0.00
Acct II	ECIS processing, bank recons and MIs would not change	-		\$0.00
Sr Mgr, Acct	Review of Journal entries & reporting	3.00	\$85.00	\$255.00
Acct II	reconciliations (performed at legal entity level so minimal efficiency)	1.00	\$45.00	\$45.00
	rollforwards (estimated at 16 hours per month, 20% efficiency)	3.20	\$45.00	\$144.00
Analyst II	regulatory reconciliation, analysis & reporting	10.00	\$45.00	\$450.00
	processing blanket capitalizations (20% efficiency on 16 hours)	3.20	\$50.00	\$160.00
Capital Analyst	regulatory reconciliation, analysis & reporting	10.00	\$50.00	\$500.00
	project processing (minimal)	1.00	\$35.00	\$35.00
Manager, Capital	Review of Journal entries, reconciliations, analysis & reporting	10.00	\$70.00	\$700.00
Total		54.40		\$2,983.00
Sr Mgr, Rpt	review of budget, forecast, LTP, monthly reporting & monthly analysis	10.00	\$70.00	\$700.00
	savings and capital reporting			
Sr Financial Analyst	budget, forecast, LTP, monthly reporting & monthly analysis savings	10.00	\$60.00	\$600.00
	budget, forecast & LTP (no WW districts in NM)	4.00	\$55.00	\$220.00
Total		24.00		\$1,520.00

EPCOR Water Arizona
Wastewater Consolidation - Agua Fria, Anthem, Mohave, Sun City, & Sun City West
Test Year Ended December 31, 2015

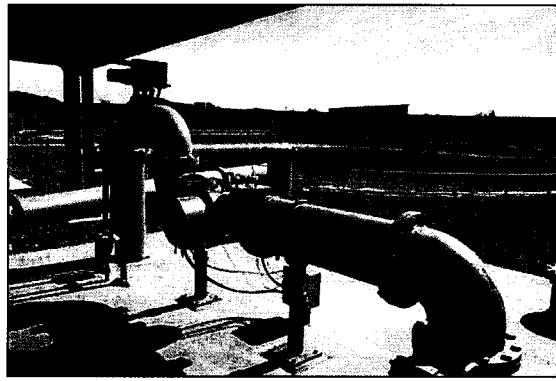
Wastewater Consolidation Efficiencies

Responsibility		Savings per Month (Hours)	Loaded Hourly Rate	\$ Savings
Manager, HR HR Coordinator HR Generalist	Review HR compliance reporting	1.00	\$65.00	\$65.00
	HR compliance reporting	3.00	\$40.00	\$120.00
		0.00		\$0.00
Total		4.00		\$185.00
Manager, Tax Tax Acct		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Total		0.00		\$0.00
Grand Total per Month		82.40		\$4,688.00
Annual Savings				<u>\$56,256.00</u>

EXHIBIT SEB-2

DEMOGRAPHIC AND ECONOMIC ANALYSIS:

Insights for Five EPCOR Wastewater Service Districts in the State of Arizona



Dr. Kent Hill and Dr. Anthony Evans
L William Seidman Research Institute
W. P. Carey School of Business
Arizona State University

March 17, 2016

L. WILLIAM SEIDMAN RESEARCH INSTITUTE

The L. William Seidman Research Institute serves as a link between the local, national, and international business communities and the W. P. Carey School of Business at Arizona State University (ASU).

First established in 1985 to serve as a center for applied business research alongside a consultancy resource for the Arizona business community, Seidman collects, analyzes and disseminates information about local economies, benchmarks industry practices, and identifies emerging issues that affect productivity and competitiveness.

Using tools that support sophisticated statistical modeling and planning, supplemented by an extensive understanding of the local, state and national economies, Seidman today offers a host of economic research and consulting services, including economic impact analyses, economic forecasting, general survey research, attitudinal and qualitative studies, and strategic analyses of economic development opportunities.

Working on behalf of government agencies, regulatory bodies, public or privately-owned firms, academic institutions, and non-profit organizations, Seidman specializes in studies at the city, county or state-wide level. Recent and current clients include:

- Arizona Commerce Authority (ACA)
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- Arizona Dept. Mines and Mineral Resources
- Arizona Hospital and Healthcare Association
- Arizona Investment Council (AIC)
- Arizona Mining Council
- Arizona Public Service Corporation (APS)
- Arizona School Boards Association
- Arizona Town Hall
- Banner Health
- BHP Billiton
- The Boeing Company
- The Central Arizona Project (CAP)
- Chicanos Por La Causa
- The City of Phoenix Fire Department
- Curis Resources (Arizona)
- The David and Gladys Wright House Foundation
- De Menna & Associates
- Dignity Health
- Environmental Defense Fund
- Epic Rides/The City of Prescott
- Excelsior Mining
- Executive Budget Office State of Arizona
- First Things First
- Freeport McMoRan
- Glendale Community College
- Greater Phoenix Economic Council
- HonorHealth
- Intel Corporation
- iState Inc.
- Maricopa Integrated Health System
- Navajo Nation Div. Economic Development
- The Pakis Foundation
- Phoenix Convention Center
- The Phoenix Philanthropy Group
- Phoenix Sky Harbor International Airport
- Protect the Flows
- Public Service New Mexico (PNM)
- Raytheon
- Republic Services Inc.
- Rio Tinto
- Rosemont Copper Mine
- Salt River Project (SRP)
- Science Foundation Arizona (SFAZ)
- The Tillman Foundation
- Turf Paradise
- Valley METRO Light Rail
- Tenet Healthcare
- Vote Solar Initiative
- Waste Management Inc.
- Yavapai County Jail District

INTRODUCTION

This report serves to compile and document information requested from the L. William Seidman Research Institute by EPCOR Water Arizona, Inc. ("EPCOR"). There are two primary sources for the information presented. Wastewater rates are taken from the *2014-15 Water and Wastewater Residential Rate Survey* as commissioned and made available by the Water Infrastructure Finance Authority of Arizona (WIFA). The reported rates in the WIFA study are current as of spring 2015. Demographic and economic statistics for EPCOR service districts are calculated using census tract level data from the *2010 Decennial Census* and the *2010-2014 American Community Survey*. Other sources of primary data are noted within the report.

Five wastewater service districts are examined in this report. These are for Agua Fria, Anthem, Mohave, Sun City and Sun City West. Using detailed maps provided by EPCOR, each of the five wastewater service districts are initially matched to census tracts. A census tract represents the finest level of geographic detail available that still provides a reasonable sample of households completing the long-form census questionnaire. The geographic matches between service districts and census tract aggregates are imperfect. The aggregates cannot provide exact figures for population or the number of housing units in EPCOR wastewater service districts. However, the matches are close enough that the census tract aggregates can offer useful estimates of proportionate statistics such as share of the population over 65 and mean household income.

The report concludes with brief insights about national trends in water and sewer rates (combined), based on CPI data which does not separately report data just for wastewater.

DEMOGRAPHIC AND ECONOMIC PROFILES

Exhibit A1 summarizes the census tracts for the wastewater service district categories. EPCOR's maps for each wastewater service district are illustrated in Exhibits A2.1-A2.5.

A demographic and economic overview of the five wastewater service districts is given in Exhibit A3. Included among the variables is a measure of the relative size of the elderly population and various measures of economic well-being including educational attainment, income and home value.

The EPCOR wastewater service districts studied contain a relatively large number of elderly people. The percent of the population age 65 and over is well above the statewide average in four of the five wastewater service districts. Most notable are Sun City and Sun City West where the elderly share of the population is around four to six times the average for the State of Arizona. The elderly share is also a third higher than the state average in the Agua Fria wastewater service district, and almost 85% higher than the state average in the Mohave district. Anthem is the only wastewater service district studied in which the percent of the population 65 and over is below the statewide average.

Two of the EPCOR wastewater service districts, Agua Fria and Anthem, are comprised of households with education, incomes and housing values that are above the statewide average. Households in Anthem, who on average have a higher level of education than the average Arizonan, have a mean annual income of \$95,500 and an average home value of \$305,000. That is, 46% higher than the statewide average of \$65,400 for income and 37% higher than the statewide average of \$222,000 for home value. Mean household incomes and home values in the Agua Fria wastewater service district are also well above statewide averages, at \$90,600 and \$277,000 respectively.

Mohave, Sun City, and Sun City West wastewater service districts are comprised of households with mean incomes and house values that are below Arizona averages.

Mean household income in Sun City wastewater service district is only 68 percent as high as the statewide average. Mean household income in Mohave wastewater service district is \$51,600 which is only 79 percent as high as the statewide average. Mean household income in Sun City West wastewater service district is only 85 percent as high as the statewide average.

The mean home value in Sun City wastewater service district is only 59 percent as high as the statewide average. The mean home value in Mohave wastewater service district is only

74 percent as high as the statewide average. In Sun City West wastewater service district, the mean home value is 87 percent as high as the statewide average.

Rate Comparisons with Wastewater Service District Peer Groups

Exhibits B1-B5 compare wastewater rates charged by EPCOR with those charged by peer providers. The reported rates are drawn from the WIFA study and are current as of spring 2015. Rates again are measured by calculating wastewater bills for three alternative levels of usage: 5,000 gallons, 10,000 gallons, and 15,000 gallons per month.

EPCOR wastewater rates in the Agua Fria wastewater service district are the highest among the four utilities compared at a usage level of 5,000 gallons per month. Agua Fria wastewater service district rates are third highest in the peer group for usage levels of 10,000 and 15,000 gallons per month.

Wastewater rates in the Anthem wastewater service district are the highest among the three utilities compared. This holds regardless of the level of usage.

Two peer providers are compared to Mohave – Bullhead City. and Lake Havasu City.¹ EPCOR wastewater rates in the Mohave wastewater service district are the highest among the three utilities compared at a usage level of 5,000 gallons per month, and second-highest for the other two usage levels.

Wastewater rates charged by EPCOR in its Sun City wastewater service district are second highest among the three utilities considered at a usage level of 5,000 gallons per month. EPCOR's rates are the lowest in the peer group for usage levels of 10,000 and 15,000 gallons per month.

EPCOR's Sun City West wastewater rates are the highest among peers for usage of 5,000 gallons per month. However, EPCOR's rates fall to lowest compared with two peers at 15,000 gallons per month.

¹ There is no wastewater rate schedule published in WIFA for Bermuda.

Wastewater Bills as a Percent of Income

Exhibit C1 illustrates the financial burden of wastewater rates expressed with reference to mean household income. Wastewater bills are calculated for two alternative levels of usage: 5,000 gallons per month and 10,000 gallons per month. These bills then are annualized and expressed as a percent of mean household income. Each wastewater service district is represented and compared with the average burden across the State of Arizona.

Financial burdens for wastewater service are shown in Exhibits C2.1 and C2.2 at 5,000 gallons per month and 10,000 gallons per month respectively.

EPCOR wastewater bills are largely independent of usage level, while in the state as a whole wastewater bills rise with the level of usage. EPCOR service districts with the highest wastewater financial burdens are Mohave and Agua Fria. The measured burdens in both of these districts are much higher than the Arizona average, especially at low levels of usage. At 5,000 gallons per month, Mohave is almost 2.5 times higher than the state average, and Agua Fria almost 2 times higher than the state average. At 10,000 gallons per month, Mohave is almost 60% higher than the state average, and Agua Fria 25% higher.

For the other three EPCOR districts, wastewater financial burdens are closer to the Arizona average at 5,000 gallons per month, and below the state average at 10,000 gallons per month. Sun City West is almost 19% higher than the state average at 5,000 gallons per month, but 23% lower at 10,000 gallons per month. Anthem is 10% higher than the state average at 5,000 gallons per month, but over 16% lower at 10,000 gallons per month. Sun City is on a par with the state average at 5,000 gallons per month, but 35% lower at 10,000 gallons per month.

DEMOGRAPHIC AND ECONOMIC PROFILES

Exhibit A1: Census Tracts Used to Represent EPCOR Wastewater Service Districts

<i>Wastewater Districts:</i>	<i>Census Tracts:</i>
Agua Fria	405.21, 405.23, 506.06
Anthem	6102, 6103, 6104
Mohave	9520.02, 9520.04
Sun City	6154, 6174, 6175, 715.03-06, 716, 717.01-02, 718.01-02
Sun City West	405.06-07, 405.12-14, 405.22

Exhibit A2.2: Anthem Wastewater Service District

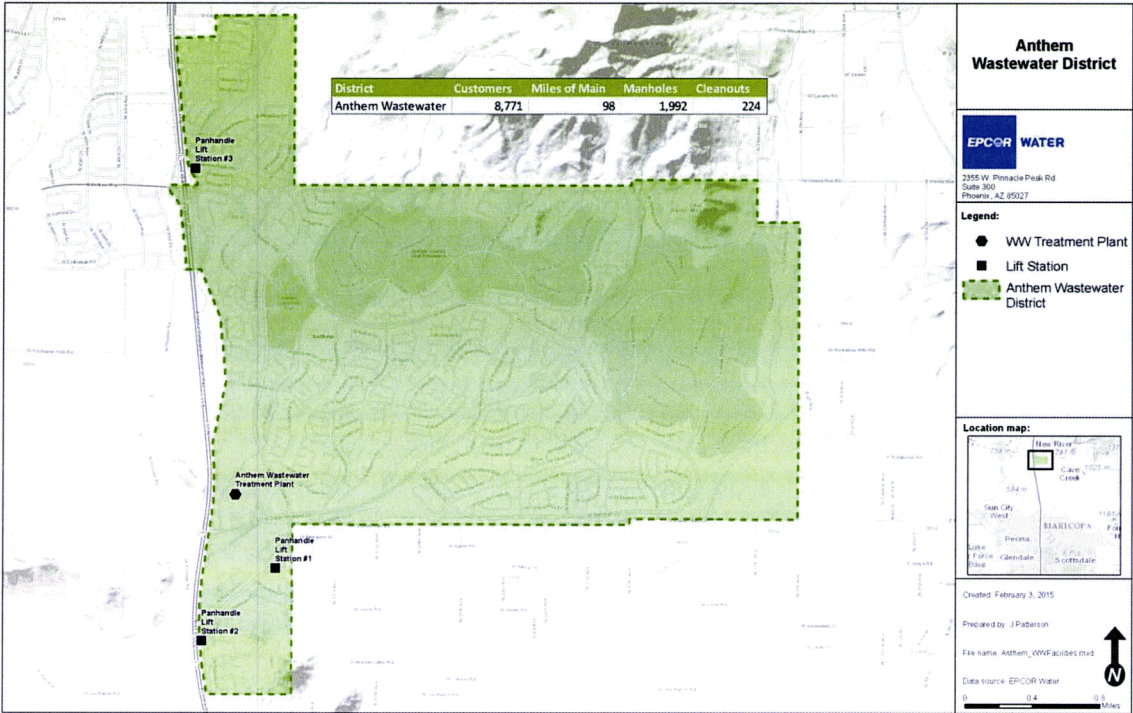


Exhibit A2.3: Mohave Wastewater Service District

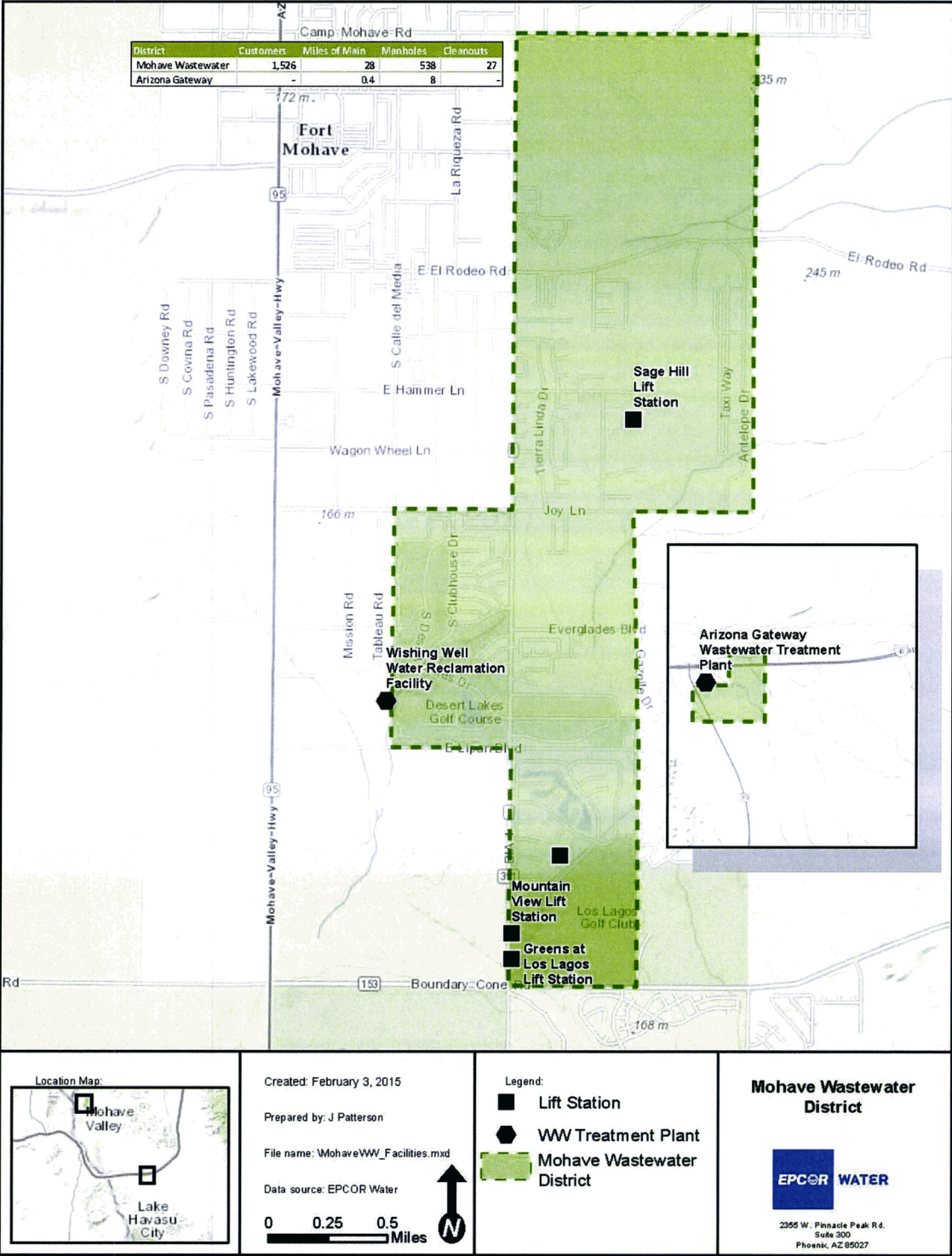


Exhibit A2.4: Sun City Wastewater Service District

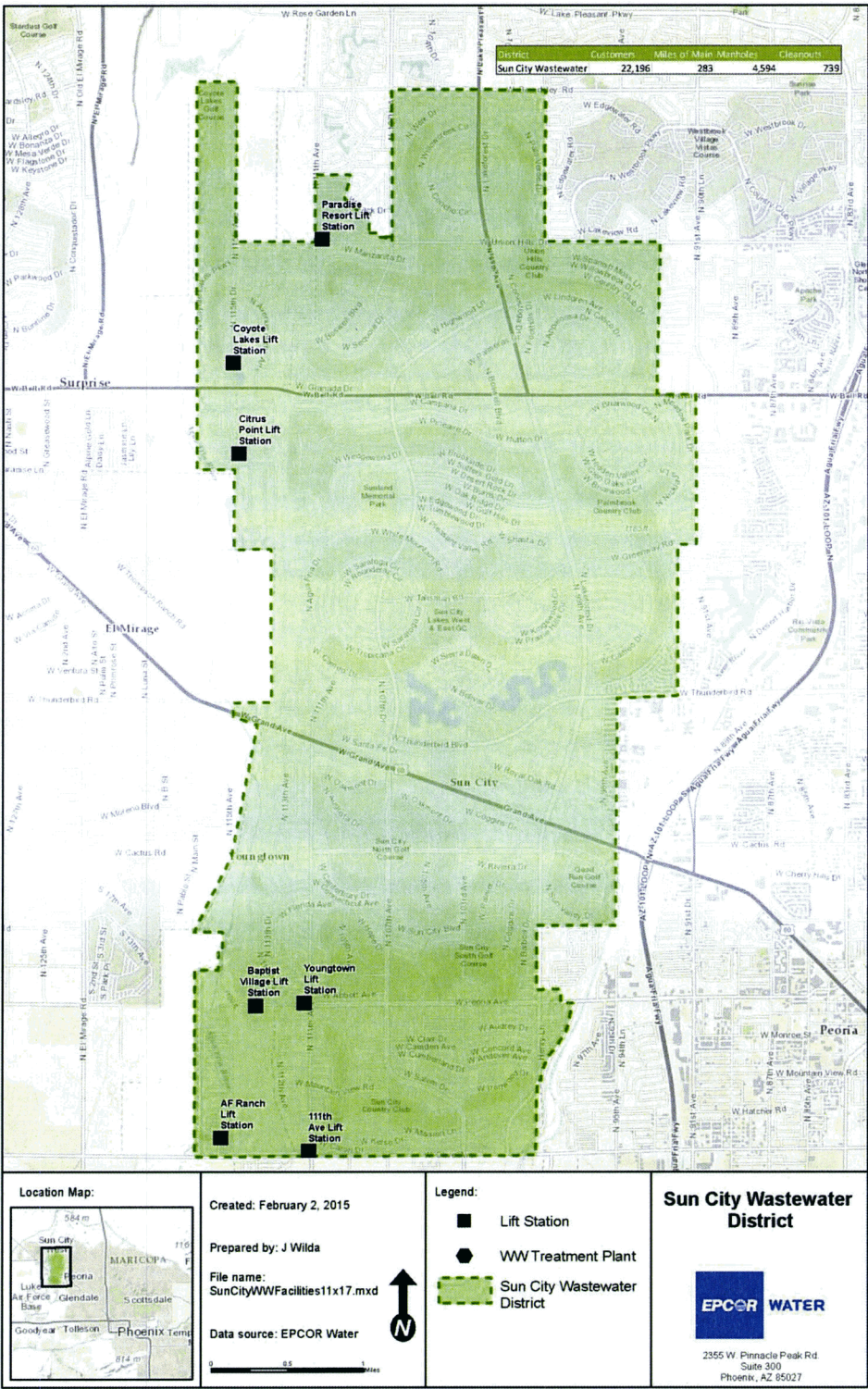


Exhibit A2.5: Sun City West Wastewater Service District

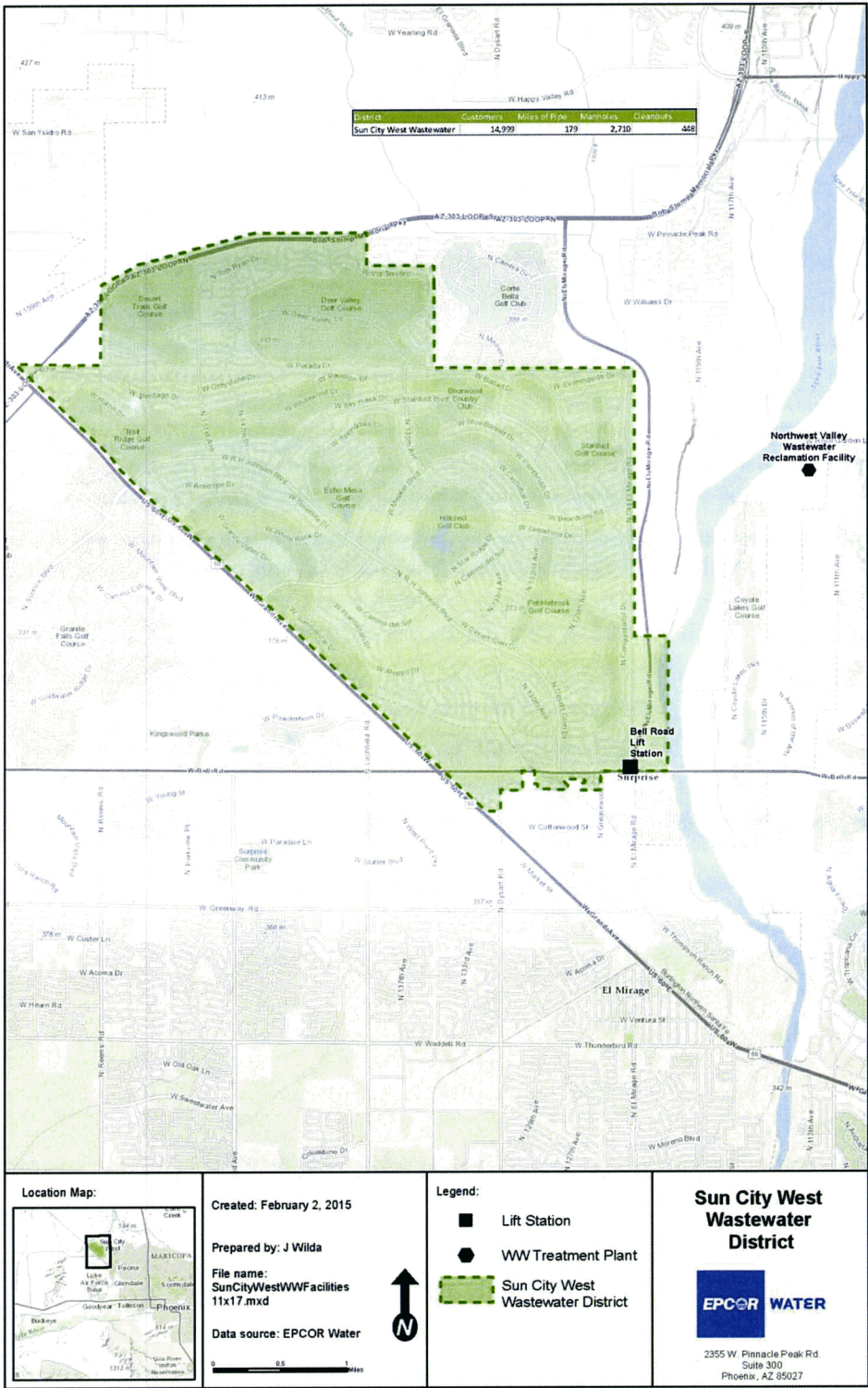
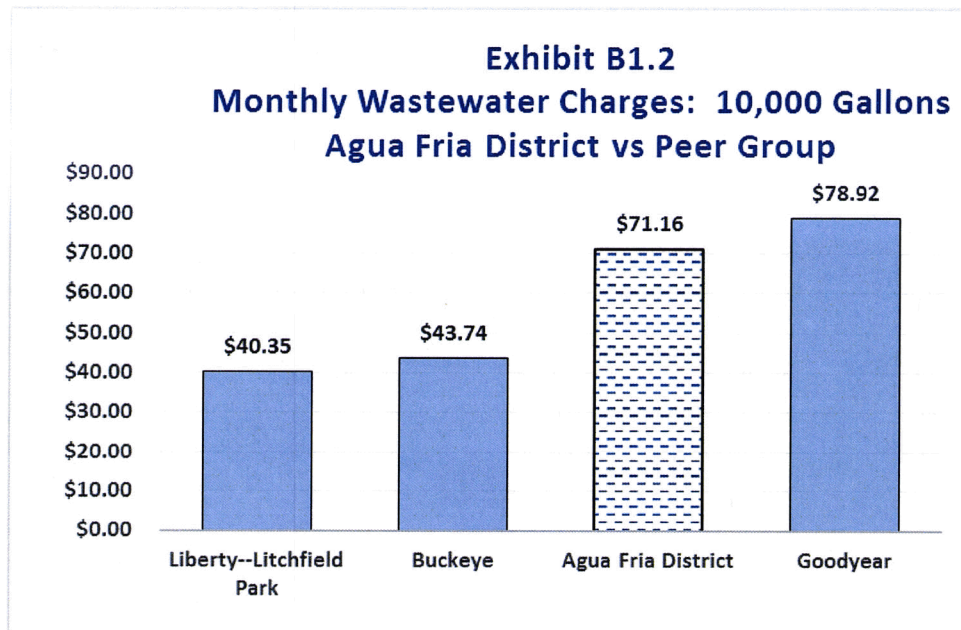
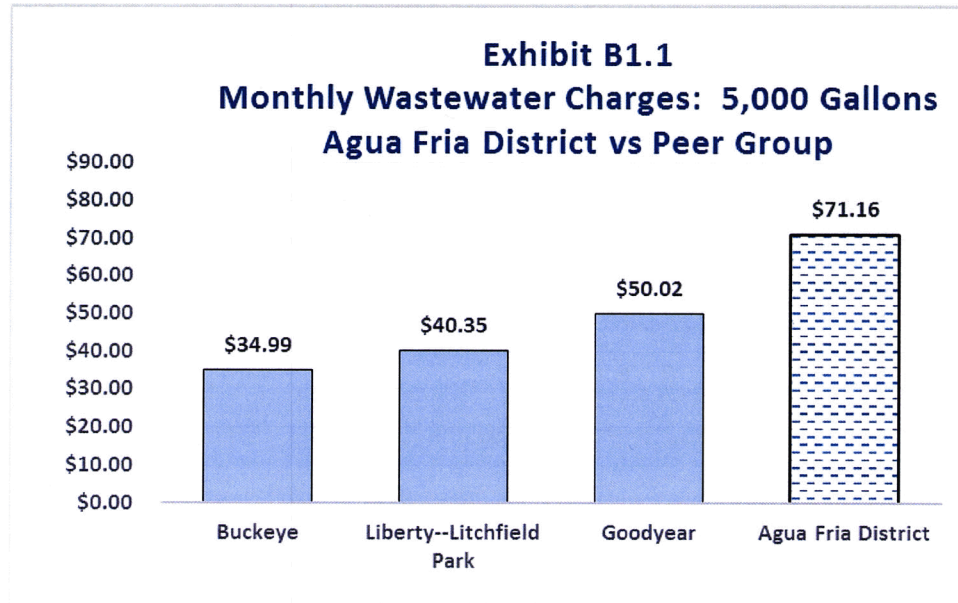


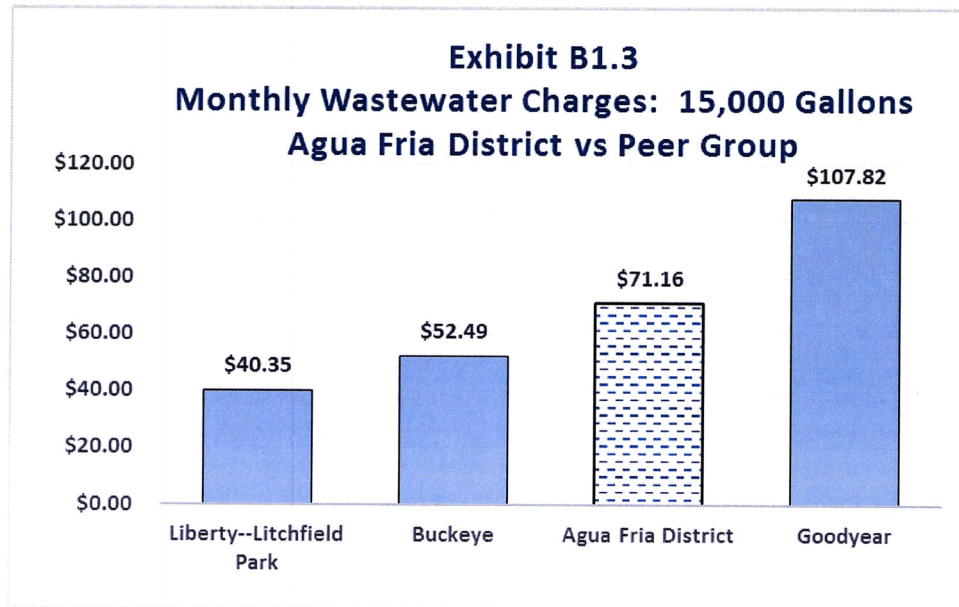
Exhibit A3: Demographic and Economic Profiles of Five EPCOR Wastewater Service Districts

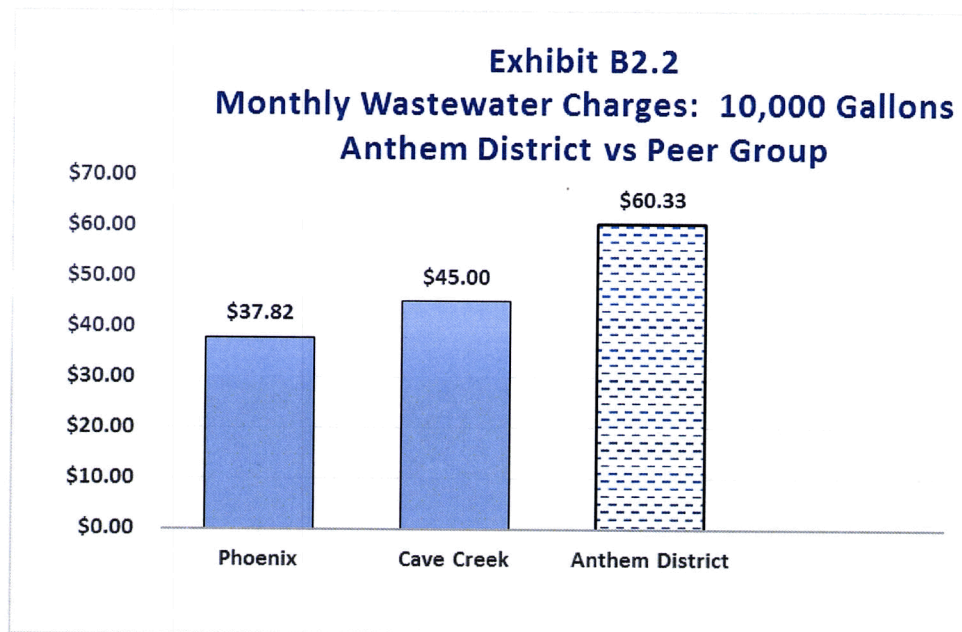
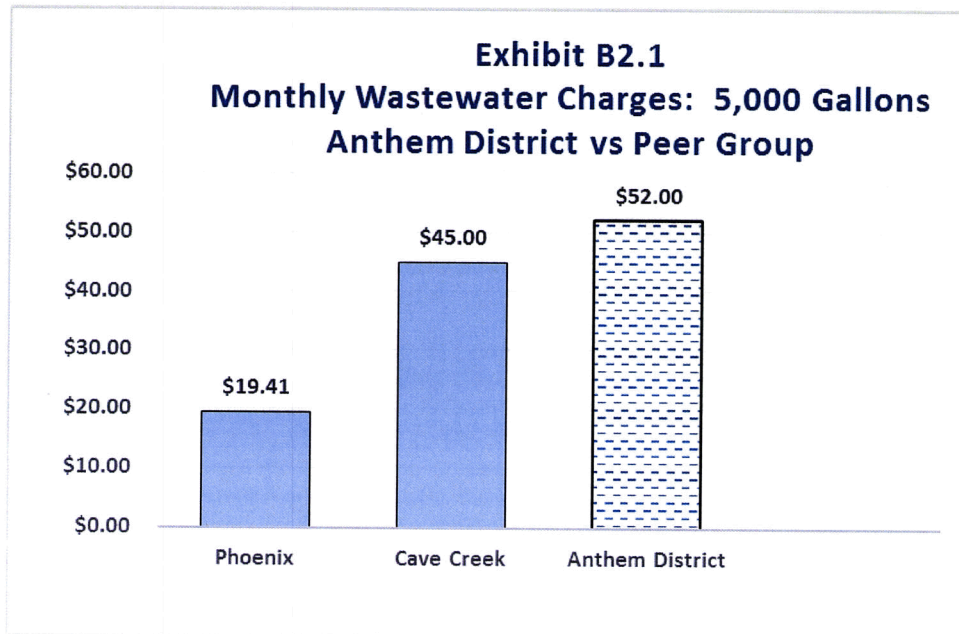
	Percent of Adult Pop w/ at least Bachelor's Degree	Mean Household Income	Percent of Households w/ Income < \$20K	Mean Home Value	Percent of Population 65 Years and Over	Mean Household Income for Householders 65 Years and Over
Agua Fria District	36.3	\$90,600	8.8	\$277,000	18.4	\$74,800
Anthem District	44.2	\$95,500	6.0	\$305,000	10.2	\$73,400
Mohave District	13.1	\$51,600	20.7	\$165,000	25.5	\$42,500
Sun City District	19.7	\$44,600	22.6	\$132,000	62.5	\$41,700
Sun City West District	34.7	\$55,500	14.7	\$193,000	84.0	\$54,600
State of Arizona	27.1	\$65,400	18.4	\$222,000	13.8	\$54,200

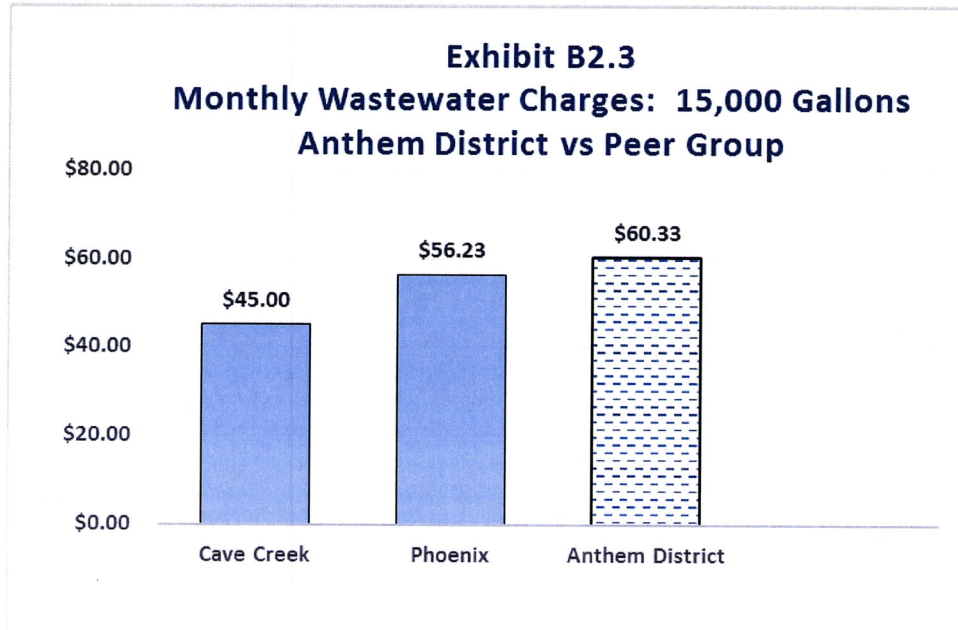
Source: U.S. Department of Commerce, Census Bureau, 2010 Census and 2010-2014 American Community Survey 5-Year Estimates

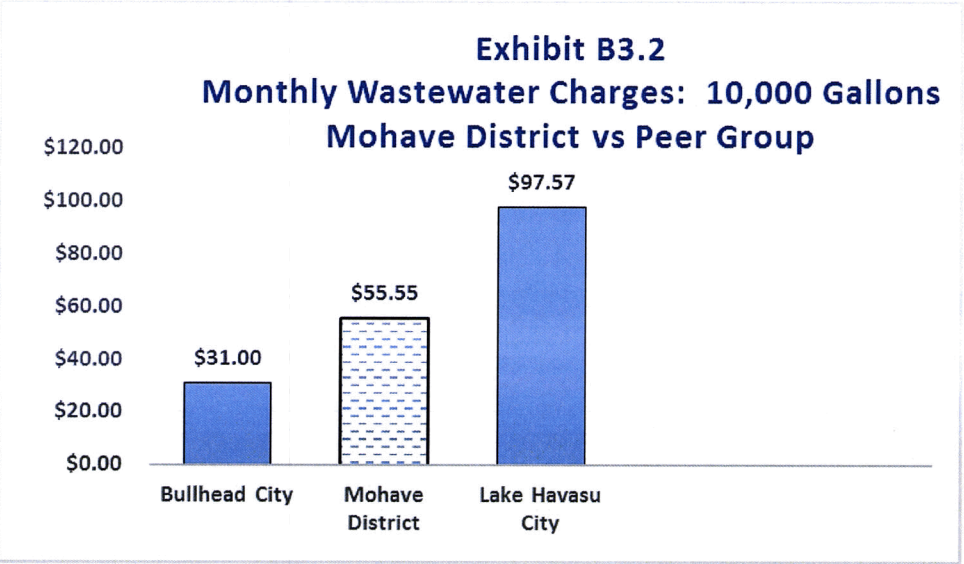
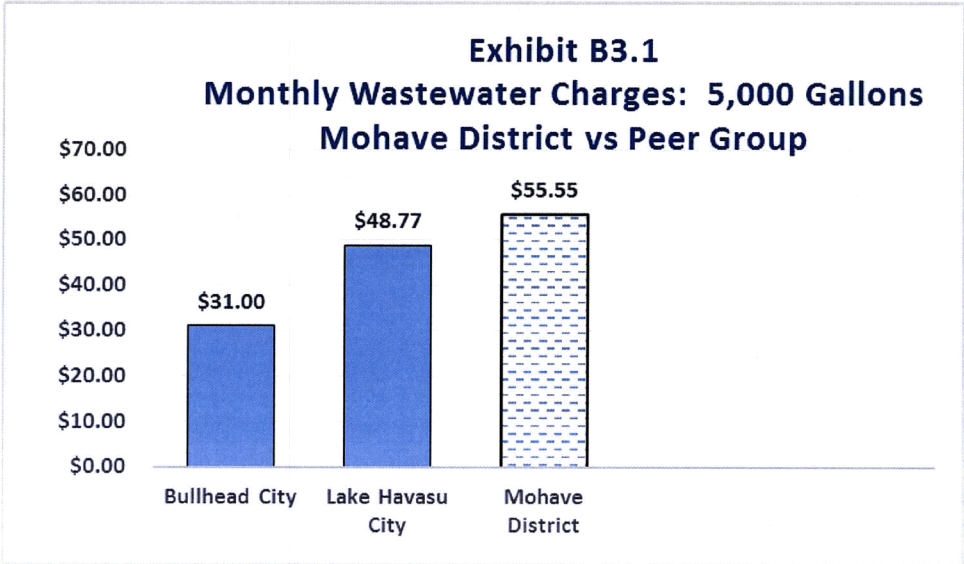
RATE COMPARISONS WITH WASTEWATER SERVICE DISTRICT PEER GROUPS

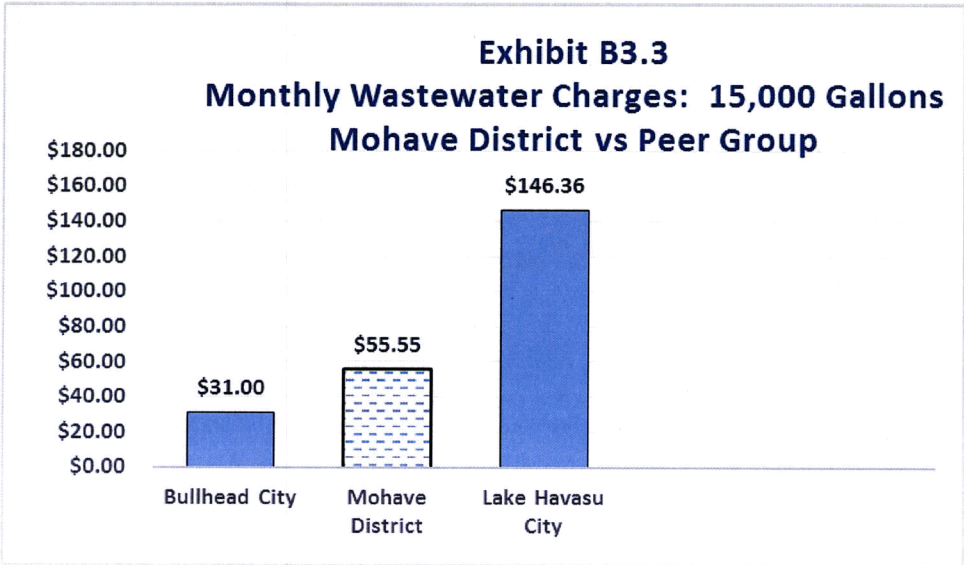


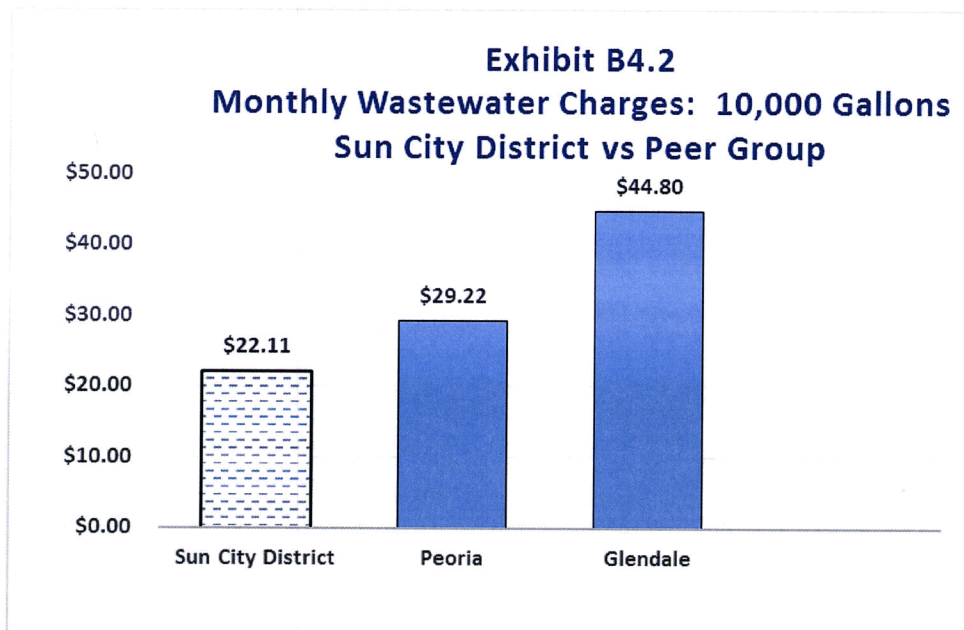
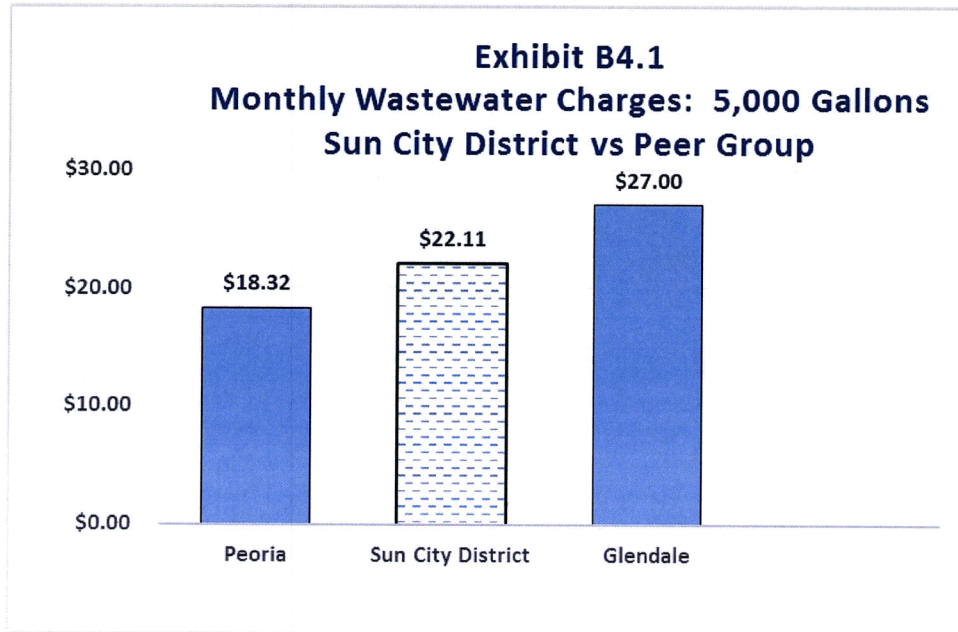


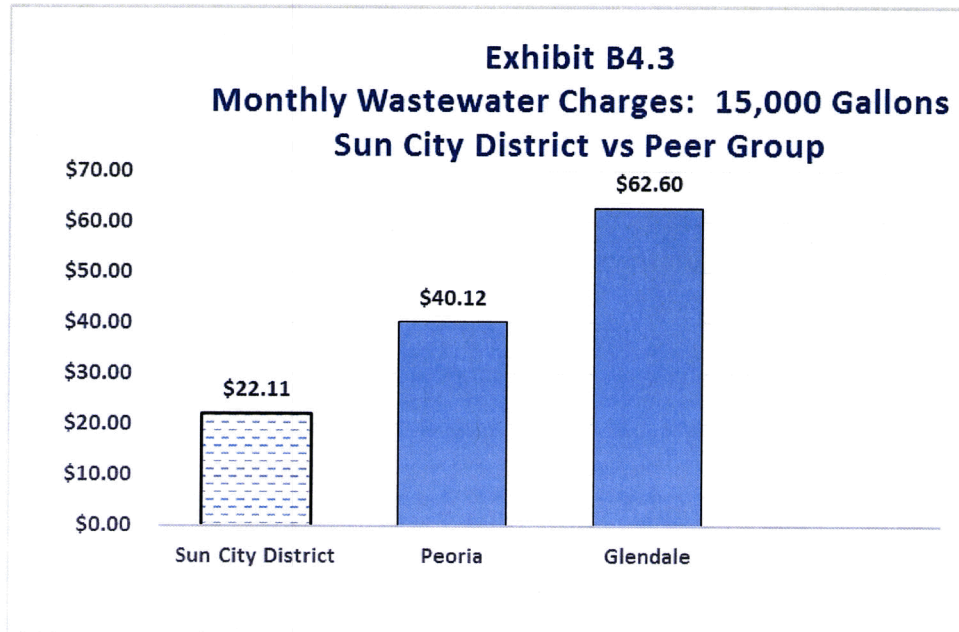


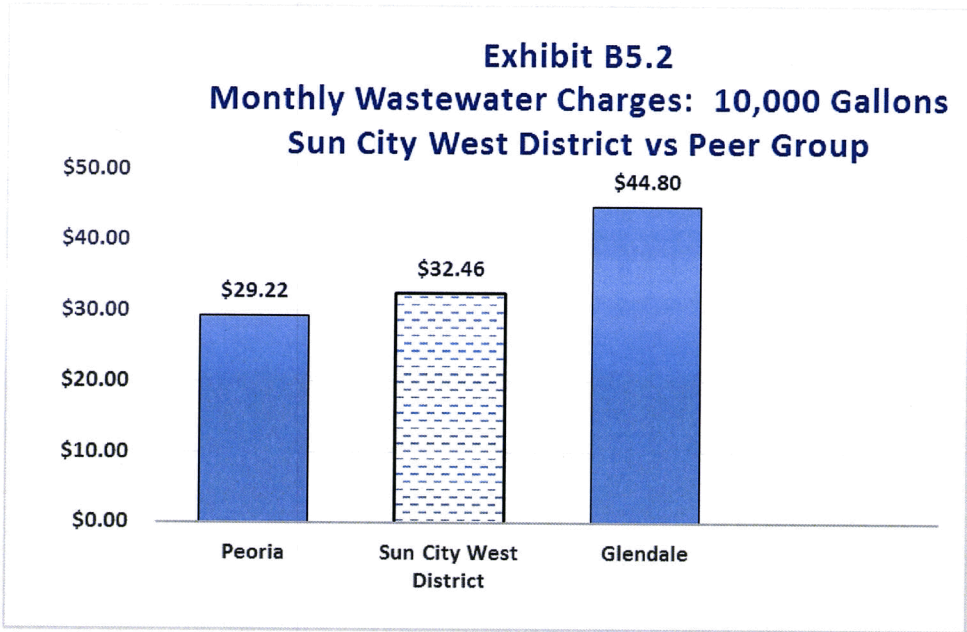
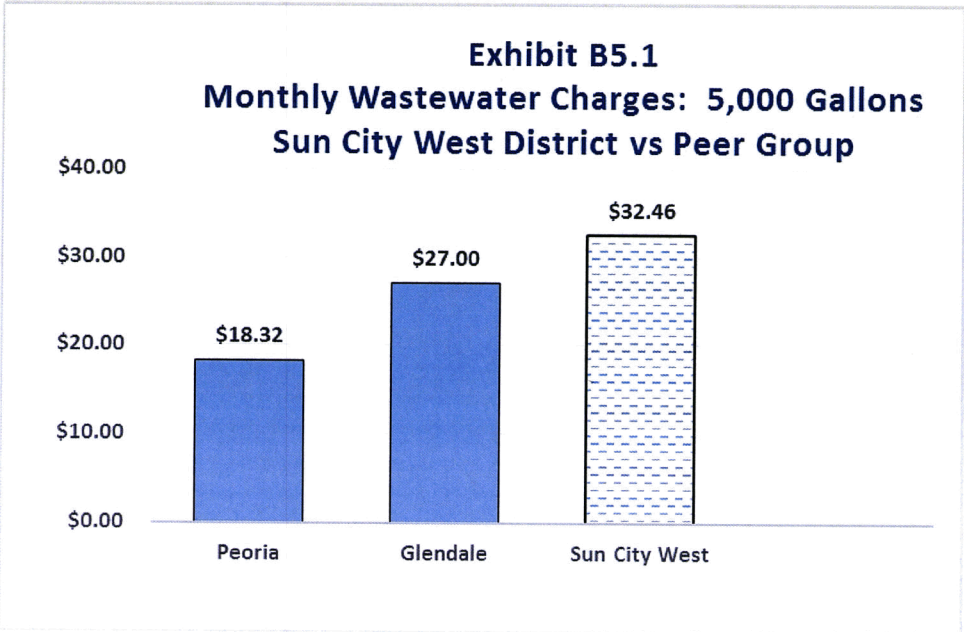


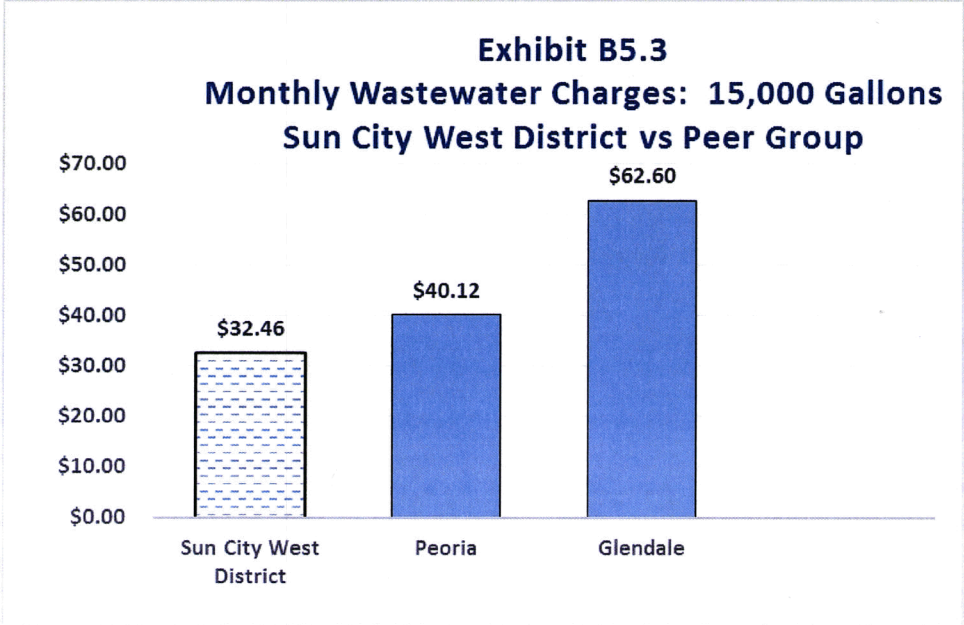












WASTEWATER BILLS AS A PERCENT OF INCOME

Exhibit C1: Annualized Wastewater Bills as a Percent of Income
(for consumption levels of 5,000 and 10,000 gallons per month)

	Monthly Wastewater Bill (5,000 gpm)	Annual Wastewater Bill (5,000 gpm)	Monthly Wastewater Bill (10,000 gpm)	Annual Wastewater Bill (10,000 gpm)	Mean Household Income	Annualized Wastewater Bill as % of Income (5,000 gpm)	Annualized Wastewater Bill as % of Income (10,000 gpm)
Agua Fria District	\$71.16	\$853.92	\$71.16	\$853.92	\$75,000	1.14	1.14
Anthem District	\$52.00	\$624.00	\$60.33	\$723.96	\$95,500	0.65	0.76
Mohave District	\$55.55	\$666.60	\$55.55	\$666.60	\$45,800	1.46	1.46
Sun City District	\$22.11	\$265.32	\$22.11	\$265.32	\$44,600	0.59	0.59
Sun City West District	\$32.46	\$389.52	\$32.46	\$389.52	\$55,500	0.70	0.70
State of Arizona	\$33.78	\$405.36	\$38.42	\$461.04	\$65,400	0.62	0.70

Exhibit C2.1
Annualized Wastewater Bills as a Percent of
Income (5,000 gallons per month)

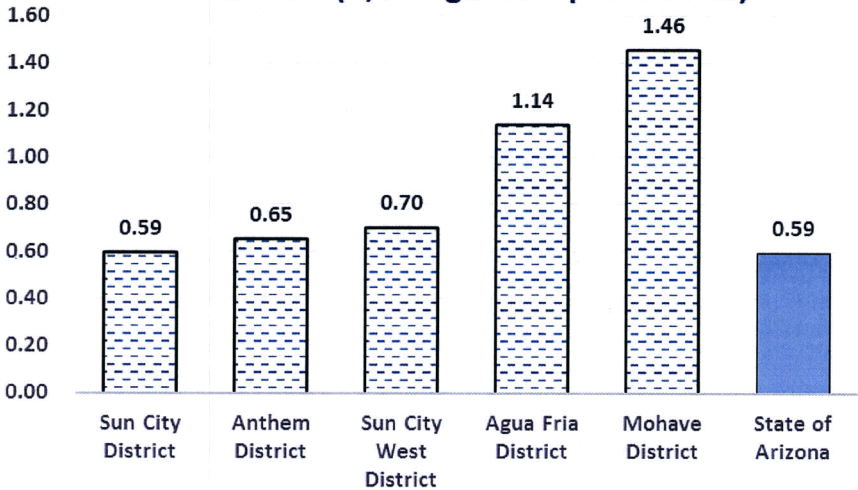
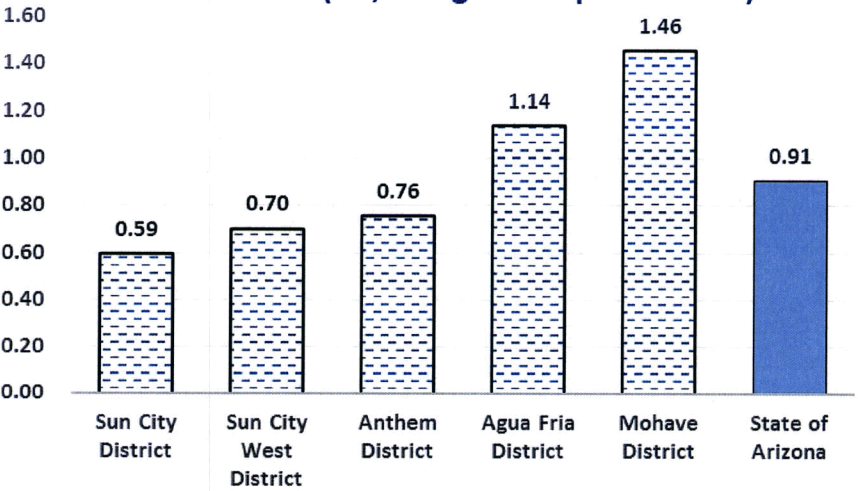


Exhibit C2.2
Annualized Wastewater Bills as a Percent of
Income (10,000 gallons per month)



NATIONAL TRENDS IN WATER AND SEWER RATES

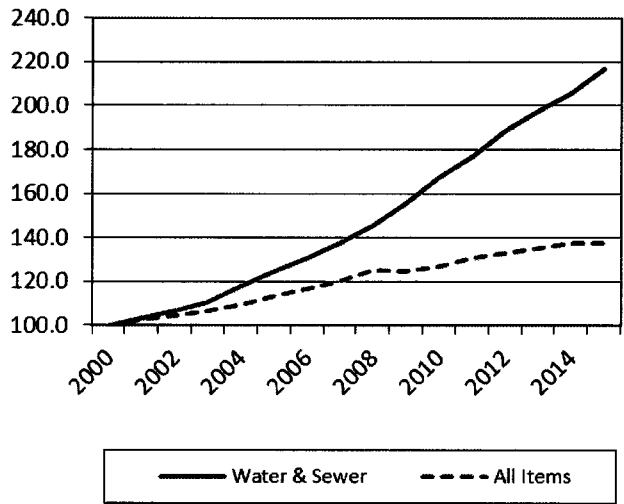
Nationwide, water and wastewater rates have been rising much faster than the general price level (see Exhibit D). Since 2000, U.S. water and sewer rates have increased at an average annual rate of 5.3 percent.² This compares with overall CPI inflation of 2.2 percent per year.

Water and wastewater rates have been rising more slowly in Arizona than in the nation as a whole. Data from a 1999 WIFA survey indicated that monthly water and sewer bills in Arizona (based on assumed monthly usage of 7,500 gallons for drinking water and 5,000 gallons for wastewater) were \$44.99 per month at that time. Results from the most recent 2015 WIFA survey revealed the average monthly bill for that amount of usage to be \$81.16. The implied annual rate of inflation in Arizona water and sewer rates is 3.8 percent. This compares with an annual rate of U.S. inflation in water and sewer of 5.3 percent.

Although water and wastewater rates have risen more slowly in Arizona than in the nation, Arizonans spend more on water and sewer than U.S. households. BLS data from the 2014 Consumer Expenditure Survey indicates that the average U.S. household spends \$530 per year on water, sewerage and trash collection. Households in the Western region of the country spend \$673 on water, sewer and trash. WIFA's calculations for a representative Arizona household put annual water and sewer bills alone (not trash) at \$974 per year.

² The national trend insights extend beyond wastewater because CPI does not report separate data for wastewater from water.

Exhibit D
National Price Trends:
Water & Sewer vs Overall CPI
U.S. City Average, 2000=100



Source: U.S. Department of Labor, Bureau of Labor Statistics



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Hubbard Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
BOB BURNS
TOM FORESE
ANDY TOBIN

IN THE MATTER OF THE APPLICATION
OF EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT
FAIR VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR
INCREASES/DECREASES IN ITS RATES
AND CHARGES BASED THEREON FOR
UTILITY SERVICE BY ITS AGUA FRIA,
ANTHEM, MOHAVE, SUN CITY, AND SUN
CITY WEST WASTEWATER DISTRICTS
AND FOR CONSIDERATION OF
CONSOLIDATION AND DE-
CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
SHERYL L. HUBBARD
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

**DIRECT TESTIMONY
OF
SHERYL L. HUBBARD
ON BEHALF OF
EPCOR WATER ARIZONA, INC.
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EXECUTIVE SUMMARY

Sheryl L. Hubbard provides a summary of the Company's requested relief as well as a brief summary of the rate case filing, which includes: 1) stand-alone results for each district; 2) fully consolidated results for all five districts; and 3) fully deconsolidated results by the seven wastewater treatment facilities. Ms. Hubbard is sponsoring the following schedules:

- Schedule A-1 – Computation of Increase In Gross Revenue Requirements
- Schedule A-2 – Summary of Operations
- Schedule A-3 – Summary of Capital Structure
- Schedule A-4 – Construction Expenditures and Gross Utility Plant in Service
- Schedule A-5 – Summary of Cash Flows
- Schedule B-6 – Working Cash Requirement (Lead / Lag Study)
- Schedule D-1 – Summary of Cost of Capital
- Schedule D-2 – Cost of Long-Term Debt
- Schedule D-3 – Cost of Preferred Stock
- Schedule D-4 – Cost of Common Equity

Ms. Hubbard also provides an overview and support for certain key requests by the Company, including the following:

- (1) a determination of its fair value rate base and fair value rate of return based on its Reconstructed Cost New Less Depreciation study;
- (2) approval of its rate case expenses which not only include costs incurred to process the current rate case application and to develop a response to the three scenarios, but also include additional expenses that were deferred pursuant to Decision No. 74588.
- (3) approval of a power cost adjustor mechanism;
- (4) approval of a property tax adjustor mechanism for the wastewater districts;

Page iv

1 (5) inclusion of revenue-neutral post-test year plant additions through June 30,
2 2017 that will provide service to test year customers;

3 (6) approval of updated depreciation rates;

4 (7) approval of an accounting order to defer costs associated with a new, proposed
5 Deployed Service Member Credit Program; and

6 (8) approval of modifications to the Company's miscellaneous service charges and
7 general service tariffs.

8 Finally, Ms. Hubbard describes the testimony sponsored by other Company witnesses in
9 this proceeding.
10
11
12

1 **I. INTRODUCTION AND QUALIFICATIONS**

2
3 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE**
4 **NUMBER.**

5 A. My name is Sheryl L. Hubbard. My business address is 2355 West Pinnacle Peak
6 Road, Suite 300, Phoenix, Arizona 85027, and my business phone is 623-445-
7 2419.

8 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

9 A. I am employed by EPCOR Water USA Inc. ("EWUS") as Director, Regulatory
10 and Rates.
11

12 **Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES WITH EWUS.**

13 A. My primary responsibilities with EWUS are to direct the preparation of rate
14 applications and other regulatory filings consistent with the applicable regulatory
15 agency's filing requirements in Arizona and New Mexico. I am also the
16 regulatory liaison between EWUS and the regulators of EPCOR Water Arizona
17 Inc. ("EWAZ" or "Company") and EPCOR Water New Mexico Inc. ("EWNM")
18 and any public outreach.
19

20 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND**
21 **EDUCATION.**

22 A. I have been employed by EWUS since the purchase of Arizona-American Water
23 Company in February 2012. I was employed by Arizona-American Water
24 Company ("AZAM") commencing in March of 2007.

1 I have more than 30 years of experience in public utility accounting and
2 regulation; 20 years of service with utility regulatory agencies in Michigan and
3 Arizona with the remainder of time with water and gas utilities in Arizona.
4 During my employment with the regulatory agencies in Michigan and Arizona, my
5 responsibilities included managing and preparing revenue requirement
6 calculations for water, steam and electric utilities.

7 My subsequent employment was with Citizens Communications Company,
8 Arizona Water Company, AZAM, and now EWUS. My responsibilities have
9 primarily been in the rates and regulatory areas of all of the utilities, but I also
10 managed the financial planning and analysis function as well as the financial
11 reporting side of the business.

12 I have a Masters of Business Administration from the University of Phoenix and a
13 Bachelor of Arts degree with a major in Accounting from Michigan State
14 University. I am a licensed, certified public accountant in the states of Arizona
15 and Michigan. I am a member of the Arizona Society of Certified Public
16 Accountants and the American Institute of Certified Public Accountants.

17 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

18 A. Yes, I have. I have also testified before other regulatory commissions in various
19 jurisdictions.
20

21 **II. PURPOSE OF TESTIMONY**

22 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.**

23 A. My testimony provides a broad overview of the Company's requested relief as
24 well as a brief summary of the testimony sponsored by other witnesses on behalf

1 of the Company in this proceeding. I am also sponsoring the lead / lag study and
2 the associated cash working capital calculation.

3 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

4 A. Section III of my testimony will provide a summary of the rate case filing which is
5 comprised of three scenarios: 1) stand-alone results for each district; 2) fully
6 consolidated results for all five districts; and 3) fully deconsolidated results by the
7 seven wastewater treatment facilities. I will then discuss key issues in the
8 Company's Application and the associated additional requests of which EWAZ is
9 seeking approval from the Commission. I will also provide a list of the witnesses
10 and identify the subject matters that each will address in their individual direct
11 testimony.

12 Section IV of my testimony provides a summary of the standard filing requirement
13 schedules that I am sponsoring in this proceeding and a discussion of each.

14
15 Section V will provide greater detail on key issues and additional requests that the
16 Company is seeking in this proceeding.

17 Section VI will discuss the deconsolidated revenue requirements and cost of
18 service for the districts.

19
20 **Q. DOES YOUR TESTIMONY INCORPORATE RECOMMENDATIONS OF**
21 **OTHER COMPANY WITNESSES?**

22 A. Yes, it does. I have incorporated recommendations sponsored by Ms. Sarah M.
23 Mahler, Ms. Sandra L. Murrey, and Mr. Jon P. Boizelle to the extent that their *pro*
24 *forma* adjustments to operating expenses are incorporated in the calculation of the

1 cash working capital that I am sponsoring summarized on Schedule B-6.

2
3 **III. SUMMARY OF RATE CASE (ALL DISTRICTS)**

4 **Q. PLEASE PROVIDE A SUMMARY OF THE DISTRICTS AND THE TEST**
5 **YEAR THAT IS USED IN THE DETERMINATION OF THE REQUESTED**
6 **REVENUE INCREASE IN THIS CASE.**

7 A. The Application in this case includes the Agua Fria, Anthem, Mohave, Sun City,
8 and Sun City West Wastewater Districts. The test year is the twelve months ended
9 December 31, 2015.

10 **Q. PLEASE SUMMARIZE THE REQUESTED INCREASE BY DISTRICT IN**
11 **THIS APPLICATION.**

12 A. EWAZ's requested revenue increase, rate base and operating expenses for the
13 consolidated proposal is summarized in Exhibit SLH-1 Summary of Schedule A-
14 1s, B-1s and C-1s. This 6-page exhibit shows the stand-alone districts'
15 contributions to the consolidated wastewater district that is the Company's
16 proposal in this case. The total requested annual revenue increase is \$5,153,623,
17 which represents a combined or consolidated increase for the five districts of
18 approximately 16.8%.

19 The proposed revenue increases and associated percentage increases are
20 summarized in Table 1 below.

21

Table 1. Proposed Revenue Increase by District

District	Fair Value Rate Base	Operating Income	Revenue Increase	Percentage Increase
Agua Fria Wastewater	\$14,685,691	\$641,505	\$ 471,679	7.8%
Anthem Wastewater	\$20,837,799	\$711,844	\$ 1,041,624	15.0%
Mohave Wastewater	\$5,534,484	\$250,792	\$ 205,526	13.7%
Sun City Wastewater	\$36,618,889	\$1,429,896	\$ 1,360,718	15.2%
Sun City West Wastewater	\$32,821,488	\$676,312	\$ 2,074,076	28.3%
Totals	\$110,498,451	\$3,710,349	\$ 5,153,623	16.8%

Q. WHY IS EWAZ MAKING THIS FILING AT THIS TIME FOR THE DISTRICTS INCLUDED IN THIS RATE APPLICATION?

A. In Decision No. 74881 (December 23, 2014), the Arizona Corporation Commission ("ACC") ordered EWAZ to file a permanent rate case for all five of its wastewater districts on or before September 30, 2015, based on a 2014 test year.¹ The five wastewater districts are the Agua Fria Wastewater District, Anthem Wastewater District, Mohave Wastewater District, Sun City Wastewater District, and Sun City West Wastewater District. The Company was directed to include the five individual wastewater districts' revenue requirements, with cost of service studies for each district to allow parties to the case to examine the information on a separate wastewater system basis, a fully consolidated basis, and on a fully deconsolidated basis by wastewater treatment facility.

¹ Decision No. 75272 (September 16, 2016) extended the deadline for the filing to April 29, 2016 and updated the test year to 2015.

1 **Q. IS THE COMPANY TAKING A POSITION REGARDING WHETHER**
2 **THESE DISTRICTS SHOULD BE REGULATED ON A FULLY**
3 **CONSOLIDATED BASIS, A FULLY DECONSOLIDATED BY**
4 **WASTEWATER TREATMENT FACILITY BASIS, OR CONTINUE THE**
5 **STATUS QUO ON A STAND-ALONE DISTRICT BASIS?**

6 A. The Company's position in the proceeding initiated by Commission Decision No.
7 74588² in 2014 (the "2014 Case") was and continues to be that full consolidation
8 of its wastewater districts is the best long-term solution. Mr. Shawn Bradford
9 discusses the details of the Company's position in his Direct Testimony in this
10 proceeding.

11
12 **Q. IS EWAZ SEEKING ANY OTHER RELIEF IN THIS RATE CASE THAT**
13 **YOU WOULD LIKE TO MENTION?**

14 A. EWAZ is also seeking approval of the following key issues and additional
15 requests in addition to its request for full consolidation of the five wastewater
16 districts:

17 (1) a determination of its fair value rate base and fair value rate of return based on
18 it Reconstructed Cost New Less Depreciation study;

19 (2) approval of its rate case expenses which not only include costs incurred to
20 process the current rate case application and to develop a response to the three
21 scenarios (stand-alone, consolidation, and deconsolidation by wastewater
22 treatment facility) required by the Commission in Decision No. 74881, but also
23 include the additional expenses that were deferred pursuant to Decision No.

² Decision No. 74589 mirrored Decision No. 74588 and any references to Decision No. 74588 should be viewed as incorporating Decision No. 74589 as well.

74588 authorizing expenses incurred in the 2014 Case proceedings which resulted in an interim settlement agreement;

(3) approval of a power cost adjustor mechanism (recognizing that a power cost adjustment mechanism was previously authorized for the Mohave Wastewater District in Decision No. 75268 in 2015);

(4) approval of a property tax adjustor mechanism for the wastewater districts;

(5) inclusion of revenue-neutral post-test year plant additions through June 30, 2017 that will provide service to test year customers;

(6) approval of updated depreciation rates;

(7) approval of an accounting order to defer costs associated with a new, proposed Deployed Service Member Credit Program; and

(8) approval of modifications to the Company's miscellaneous service charges and general service tariffs.

**Q. WHAT OTHER WITNESSES ARE PROVIDING DIRECT TESTIMONY
IN SUPPORT OF EWAZ'S RATE APPLICATION IN THIS
PROCEEDING?**

A. The following witnesses are providing direct testimony on the following subject matters in support of EWAZ's rate application:

Witness	Subject Matter
Mr. Shawn Bradford	Company's recommendation for consolidation / deconsolidation including geographic /economic /

demographic support, and cost reductions /
efficiencies anticipated with full consolidation

Ms. Sheryl L. Hubbard	Overview of the rate case including case format (stand alone, consolidation, and deconsolidation by treatment facility), capital structure and cost of debt, lead / lag study and cash working capital, rate case expense, and summary of company witnesses and content of rate case
Pauline Ahern (Sussex Advisors)	Cost of equity and risk free rate for fair value rate of return
Connie Heppenstall (Gannett Fleming)	Cost of Service Study (COSS), Rate Design for stand-alone districts, full consolidation of five wastewater districts, and full deconsolidation by wastewater treatment facility, low income rate design, and customer annualization adjustment
Thomas J. Bourassa	Reconstructed Cost New Less Depreciation (RCNLD) study
John F. Guastella (Guastella Associates)	Depreciation study and recommended depreciation rates
Andrew Brown	Post-Test Year Plant Additions through June, 2017
Jeffrey W. Stuck	Operations in the Anthem Wastewater and Mohave Wastewater Districts
Frank Metzler	Operations in the Sun City Wastewater, Sun City West Wastewater, and Agua Fria Wastewater Districts, including a discussion on the Tolleson treatment facility's capital and operating expenses
Sarah M. Mahler	Rate base except for cash working capital, roll-forwards of plant activity (additions, retirements, transfers) since each district's last rate case, income statement <i>pro forma</i> adjustments on Schedule C-2, financial projections (F Schedules), and qualifying criteria for a new Deployed Service Member Credit Program

Sandra L. Murrey

Adjusted Operating Income and income statement
pro forma adjustments on Schedule C-2, and the
Company's proposed miscellaneous service charges
and general service tariffs

Jon P. Boizelle

Income statement *pro forma* adjustments on
Schedule C-2, power cost adjustor mechanism and
property tax adjustor mechanism

IV. **SPONSORED SCHEDULES**

Q. PLEASE IDENTIFY THE SCHEDULES YOU ARE SPONSORING.

A. I am sponsoring the following schedules for the Company:

Summary Information:

- Schedule A-1 –Computation of Increase In Gross Revenue Requirements
- Schedule A-2 – Summary of Operations
- Schedule A-3 – Summary of Capital Structure
- Schedule A-4 – Construction Expenditures and Gross Utility Plant in Service
- Schedule A-5 – Summary of Cash Flows
- Schedule B-6 – Working Cash Requirement (Lead / Lag Study)
- Schedule D-1 – Summary of Cost of Capital
- Schedule D-2 – Cost of Long-Term Debt
- Schedule D-3 – Cost of Preferred Stock
- Schedule D-4 – Cost of Common Equity

**Q. WERE THESE SCHEDULES PREPARED BY YOU OR UNDER YOUR
SUPERVISION?**

1 A. Yes.

2 A **A SCHEDULES - Summary Schedules (all districts)**

3 Q. **PLEASE EXPLAIN SCHEDULE A-1.**

4 A. Schedule A-1 titled "Computation of Increase In Gross Revenue Requirements"
5 shows the calculation of the increase in gross revenue and summarizes the change
6 in gross revenues that the Company has determined is necessary to continue to
7 provide safe and reliable wastewater services to its customers while providing the
8 Company an opportunity to earn a reasonable rate of return on its investments
9 dedicated to utility service in these five districts. For purposes of this proceeding,
10 the increase in the gross revenue requirement for the districts included in this
11 Application is based on a test year ending December 31, 2015, and totals
12 \$5,153,623 as summarized in Table 2 below.

13 **Table 2. Requested Revenue Increase**

	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Increase in Gross Revenue Requirement	\$ 471,679	\$1,041,624	\$205,526	\$1,360,718	\$2,074,076	\$5,153,623

14 Q. **PLEASE EXPLAIN SCHEDULE A-2.**

15 A. Schedule A-2 titled "Summary Results of Operations" contains operating history
16 for the unadjusted and adjusted test year ended December 31, 2015, calendar years
17 2014 and 2013, as well as projected year 2016 for each district. The test year 2015
18 figures on this exhibit are presented unadjusted as recorded in the accounting
19 records of the Company and also adjusted for the *pro forma* changes identified in
20 the Company's Application.

21 Q. **PLEASE EXPLAIN SCHEDULE A-3.**

1 A. Schedule A-3 titled "Summary of Capital Structure" summarizes the debt and
2 equity of the Company allocated to the individual districts for test year ending
3 December 31, 2015, and the calendar years 2014 and 2013, as well as projected
4 year 2016 for each district. The test year 2015 figures are presented unadjusted as
5 well as adjusted for *pro forma* changes recommended in the Company's
6 Application.

7
8 **Q. PLEASE EXPLAIN SCHEDULE A-4.**

9 A. Schedule A-4 is titled "Construction Expenditures and Gross Utility Plant in
10 Service". This schedule presents the historical construction expenditures for the
11 test year ending December 31, 2015, and calendar years 2014 and 2013, as well as
12 three years of projected construction expenditures for the district. This schedule
13 also contains annual cost data for net plant placed in service and balances of gross
14 utility plant in service for the same time periods provided for construction
15 expenditures. Company witness Mr. Andrew Brown will address construction
16 expenditures in this proceeding.

17
18 **Q. PLEASE EXPLAIN SCHEDULE A-5.**

19 A. For each district, Schedule A-5 titled "Summary of Cash Flows" is a statement of
20 cash flows detailing the changes in the cash accounts for test year ending
21 December 31, 2015, and calendar years 2014 and 2013.
22

B B Schedules - Rate base schedules (all districts)

**Q. IS EWAZ PROPOSING TO USE IT ORIGINAL COST RATE BASE AS
THE FAIR VALUE RATE BASE IN THIS PROCEEDING?**

A. No. The Company has engaged the assistance of a consultant, Mr. Thomas J. Bourassa, to prepare a Reconstructed Cost New Less Depreciation ("RCNLD") study of the wastewater assets that are included in the Company's Original Cost Rate Base. Mr. Bourassa is also providing testimony in support of the study he prepared. The results of Mr. Bourassa's RCNLD study have been included in the B Schedules that are sponsored by Ms. Sarah M. Mahler, and Ms. Mahler discusses how the results of Mr. Bourassa's RCNLD study impact the calculation of the Company's Fair Value Rate Base that EWAZ is requesting form the basis of the determination of the Company's revenue requirement in this proceeding.

**Q. WHICH B SCHEDULES ARE YOU SPONSORING IN THIS
PROCEEDING?**

A. I am only sponsoring Schedule B-6, which details the calculation of the cash working capital component of the Working Capital Allowance summarized on Schedule B-5. Ms. Mahler is sponsoring Schedule B-5 except for the cash working capital component. The Cash Working Capital component of the Working Capital Allowance is derived from conducting a Lead/Lag study.

**Q. PLEASE DISCUSS THE CASH WORKING CAPITAL COMPONENT OF
THE WORKING CAPITAL REQUIREMENT.**

1 A. Cash working capital should represent the average amount of capital provided by
2 investors, over and above the investment in plant and other rate base items, to
3 finance the cost of service during the time lag before revenues are collected.
4 In conjunction with the other components of rate base, the cash working capital
5 component measures the amount of investor-supplied capital required to provide
6 service. There are several acceptable methods for computing the cash working
7 capital component, but the ACC Staff has adopted the use of the lead/lag
8 methodology for determining cash working capital for large water and wastewater
9 utilities in this jurisdiction. The Company's lead/lag cash working capital
10 calculation will be discussed in conjunction with the discussion of Schedule B-6
11 below.

12 **Q. PLEASE EXPLAIN SCHEDULE B-6.**

13 A. Schedule B-6 titled "Lead/Lag Study – Cash Working Capital Requirement"
14 details the calculation of the investor-provided working cash component of the
15 working capital allowance. To compute the working cash component, it is
16 necessary to measure the time lag between services rendered and the receipt of
17 revenues for those services. This measurement, referred to as Revenue Lag Days,
18 reflects a provision of working capital by investors and is shown in Column (C) of
19 Schedule B-6. It is also necessary to measure the time lag between the incurrence
20 of expenses and the payment of those expenses by the Company referred to as the
21 Expense Lag Days (Column (D) of Schedule B-6), which offsets the revenue lag.
22 This is referred to as the Net Lag Days and is summarized by expense category in
23 Column (E) of Schedule B-6. When the Revenue Lag Days exceed the Expense
24 Lag Days, there is a net provision of working capital by investors. If the converse
25 is true, there is a net provision of working capital by customers. The cash working

capital calculation in this case is based on the adjusted test year results multiplied by the lead/lag factors derived from the exercise discussed above. This is true except for customer accounting, property taxes, and income tax expenses, in which case, the level of expense at the proposed rate levels has been used to account for changes that are impacted by changes in revenue.

C D Schedules - Cost of Capital (all districts)

Q. WHAT IS THE REQUESTED COST OF CAPITAL IN THIS PROCEEDING?

A. EWAZ's proposed weighted average cost of capital ("WACC") based on its actual capital structure for the test year is 7.07%, which is calculated on the D Schedules that I am sponsoring. EWAZ's actual test year capital structure is 56.36% long-term debt and 43.64% equity.

EWAZ's cost of long-term debt is 4.29% and the required cost of equity is 10.65%. The Company's WACC, based on these cost rates and the test year capital structure, is 7.07%.

EWAZ is proposing a fair value rate of return ("FVROR") of 6.22% that is based on the methodology adopted by the Commission in several recent rate cases.

Q. PLEASE IDENTIFY THE D SCHEDULES THAT YOU ARE SPONSORING.

A. In this proceeding, I am sponsoring Schedules D-1 through D-4 that provide the overall cost of capital and its component details – summary of cost of capital

(Schedule D-1), cost of debt (Schedule D-2), cost of preferred stock (Schedule D-3), and cost of equity (Schedule D-4) for the total EWAZ as well as for each district.

Q. PLEASE DISCUSS SCHEDULE D-2 AND THE COMPANY'S CALCULATED COST OF DEBT?

A. The cost of Short-Term Debt and Long-Term Debt is set forth on Schedule D-2. Schedule D-2 displays an average cost of long-term debt of 4.29%, which has been in effect since the purchase by EWUS of the AZAM districts from American Water Company on February 1, 2012. Decision No. 72668 (issued November 17, 2011) authorized EWAZ to refinance all of the then existing long-term debt as part of the purchase by EWUS. This was done in 2012 with a weighted cost of debt adjusted for debt issuance costs of 4.29%.

Q. WHAT IS THE ESTIMATED COST OF EQUITY?

A. The estimated cost of equity is 10.65% and is shown both on Schedule D-4 titled "Cost of Common Equity" and also on Schedule D-1 titled "Summary of Cost of Capital". Ms. Pauline M. Ahern's Direct Testimony on behalf of the Company supports this cost of equity as fair and reasonable.

Q. DOES EWAZ HAVE ANY PREFERRED STOCK OUTSTANDING?

A. No. Schedule D-3 titled "Cost of Preferred Stock" states that the schedule is not applicable because there is no preferred stock outstanding.

1 **V. KEY ISSUES AND ADDITIONAL REQUESTS**

2 **A Consolidation**

3 **Q. ONE OF THE KEY ISSUES IDENTIFIED ABOVE IN YOUR SUMMARY**
4 **OF THIS APPLICATION IS CONSOLIDATION. IS CONSOLIDATION**
5 **STILL THE COMPANY'S PREFERRED OUTCOME EVEN AFTER**
6 **UPDATING THE TEST YEAR FOR THE FIVE WASTEWATER**
7 **DISTRICTS AND COMPLETING COST OF SERVICE STUDIES?**

8 A. Yes. Although Mr. Bradford is the Company's primary witness on consolidation,
9 it is my opinion that consolidating the Company's five wastewater districts at this
10 time is the best solution for our customers. Currently, the Company's wastewater
11 rates for residential customers range from a low rate of \$22.11 to a high rate of
12 \$78.53.³ All of the Company's customers receive the same quality service and the
13 treatment facilities are very similar. Although the age of some of the
14 infrastructure may be different in certain service territories like Sun City and Sun
15 City West, the Company's older systems are receiving long overdue infrastructure
16 replacements that will increase the rate base per customer in those districts.

17 **B Rate Case Expense (All Districts)**

18 **Q. WHAT IS EWAZ'S PROPOSED RATE CASE EXPENSE FOR THIS**
19 **PROCEEDING?**

20 A. As discussed earlier in this testimony, the Company has already incurred
21 substantial rate case expenses both to prepare the current rate case application and
22 to respond to the three scenarios (stand-alone, consolidation, and deconsolidation
23 by wastewater treatment facility) required by the Commission in Decision No.
24 74881, and also the expenses incurred from what I will refer to as the first phase of

³ The \$78.53 is the fully phased-in rate for the Mohave Wastewater District and is effective September 1, 2017.

1 this proceeding. The first phase of this proceeding started in July of 2014 in
2 response to customer complaints about the Company's rate changes in January
3 2014 for the Anthem and Agua Fria Wastewater Districts and the June 2014 rate
4 change in the Agua Fria Water District. The Commission authorized the deferral
5 of the first phase expenses in Decision No. 74588. The first phase of this
6 proceeding resulted in an interim settlement agreement agreed to by all parties,
7 which the Commission approved in December 2014. From the commencement of
8 the first phase of the proceeding until July 31, 2015, when the Company sought an
9 extension for the filing of this rate case, the Company incurred \$611,519 of
10 expenses. When the Commission granted the extension request in Decision No.
11 75272 (issued September 16, 2015), the extension was granted with the condition,
12 accepted by the Company, that of the \$612,000 of costs incurred through July
13 2015, only \$400,000 could be deferred for possible future recovery. In addition to
14 the \$400,000 of expenses from first phase of this proceeding, the Company
15 estimates it will incur an additional \$757,000, for a total of \$1,157,000 of rate case
16 expense. Of the \$1,157,000 estimated rate case expense, \$114,000 was incurred to
17 deconsolidate the Agua Fria and Mohave Wastewater assets into new districts
18 based on wastewater treatment facilities. An outside accounting firm was
19 commissioned to assist in segregating those assets and is discussed in Ms.
20 Mahler's testimony. Ms. Murrey sponsors income statement adjustment SLM-
21 IS13 on Schedule C-2 for each district, which relies on a 4-factor allocation of the
22 proposed rate case expense excluding the costs to deconsolidate the Agua Fria and
23 Mohave Wastewater assets. The costs incurred to deconsolidate the Agua Fria and
24 Mohave Wastewater assets were directly allocated to the resulting sub-districts on
25 the basis of the percentage of their individual sub-district assets to the total of the

1 two districts assets before segregation. Proposed rate case expenses are amortized
2 over a three-year amortization period.

3 **Q. HOW DID YOU ARRIVE AT THIS AMOUNT?**

4 A. The rate case expenses were estimated based on our experience with rate cases
5 before the Commission, and EWAZ's size and the anticipated length and
6 complexity of the proceedings. If the processing of this Application turns out to
7 be more complicated than anticipated, the Company will modify its request to
8 account for the additional incurred expenses. Conversely, if rate case expense is
9 lower than expected, we will make an appropriate adjustment downward during
10 the briefing stage of the case.

11 **C Post Test Year Plant Additions**

12 **Q. THE COMPANY IS REQUESTING TO INCLUDE POST TEST YEAR**
13 **PLANT ADDITIONS THAT WILL BE IN SERVICE BY JUNE 30, 2017.**
14 **PLEASE EXPLAIN WHY THE COMPANY IS REQUESTING**
15 **ADDITIONS TO RATE BASE EIGHTEEN MONTHS AFTER THE END**
16 **OF THE TEST YEAR.**

17 A. EWAZ has increased its capital expenditure plans in response to significant
18 infrastructure deterioration. Without this needed investment, the Company's
19 ability to continue to provide safe and reliable service would be at risk. As
20 discussed in greater detail in the testimony of Mr. Andrew Brown, the projects that
21 have been identified are necessary to continue serving the customers that the
22 Company has today at the service level that EWAZ demands. Although 18
23 months after the end of the test year, on the surface, sounds like a long time, the
24 timeclock to process this case is estimated to expire in June 2017, as long as
25 sufficiency is granted within 30 days. The Company, therefore, is asking for

1 inclusion of plant that is completed by June 30, 2017 and serving current
2 customers.

3 **Q. PLEASE EXPLAIN HOW THIS BENEFITS CUSTOMERS.**

4 A. Customers receive an immediate benefit when post test year plant is put into
5 service. Continuous investment in capital is necessary given the age of the
6 infrastructure and benefits customers through improved service. As an example,
7 replacing aging collection mains in Sun City will result in less collection breaks
8 that wreak havoc on city streets as well as the environment. Service quality and
9 aesthetics such as odor control are also improved when wastewater infrastructure
10 is well maintained.

11 **Q. AND HOW IS INCLUDING POST TEST YEAR PLANT IN RATE BASE**
12 **FOR PERIODS BEYOND THE TEST YEAR BENEFICIAL TO THE**
13 **COMPANY?**

14 A. By providing recovery of the investment in plant and the depreciation on that plant
15 close to the time that the plant goes into service not only provides additional cash
16 flow to continue investing in infrastructure replacements, but it also reduces the
17 deterioration on operating income due to the depreciation expense and any
18 additional operations and maintenance costs that the new plant creates. In general,
19 it provides a more reasonable opportunity for a Company to earn its authorized
20 return, which allows for less frequent rate applications, which carry additional
21 costs to the customer. And, by supporting the financial health of the Company, this
22 ultimately benefits customers.

1 **Q. DOES THE INCLUSION OF POST TEST YEAR PLANT ALLEVIATE**
2 **REGULATORY LAG IN A SIMILAR MANNER AS THE SYSTEM**
3 **IMPROVEMENT BENEFIT ("SIB")?**

4 A. Yes, it can have that effect. As with the SIB, post test year plant included in rate
5 base allows a Company to earn a return on plant placed in service and benefitting
6 existing customers after the test year. And, any mechanism that reduces regulatory
7 lag ultimately benefits both the Company and customers.

8 **D Property Tax Adjustor Mechanism**

9 **Q. IS EWAZ REQUESTING APPROVAL FROM THE COMMISSION TO**
10 **IMPLEMENT A PROPERTY TAX ADJUSTOR MECHANISM?**

11 A. Yes. Property taxes are levied by local, county and state authorities, and the
12 Company does not have any control over these expenses. In the past few years, as
13 discussed in detail in the testimony of Mr. Jon P. Boizelle, the Company has
14 experienced special assessments in the middle of the property tax year, which have
15 increased that expense without the potential for recovery from customers. With a
16 property tax adjustor mechanism, changes in property tax rates, whether increases
17 or decreases, can be recovered from or refunded to customers in a timely fashion.

18 **E Power Cost Adjustor Mechanism**

19 **Q. IS EWAZ REQUESTING APPROVAL FROM THE COMMISSION TO**
20 **IMPLEMENT A POWER COST ADJUSTOR MECHANISM?**

21 A. Yes. Power costs from regulated utilities such as Arizona Public Service
22 Company ("APS") and Mohave Electric Cooperative may be increased through
23 various methods, such as fuel and power adjustors, transmission cost adjustors,
24 environmental surcharges or general rate cases. Although these increases are

1 approved by the Commission, the Company does not have any control over these
2 expenses. Annually, the Company's Operations staff discusses the intentions of
3 these electric service providers as they relate to potential changes in power costs to
4 the Company. However, knowledge of these impending rate changes alone does
5 not enable EWAZ to reflect those changes in the rates it charges its customers. As
6 discussed in greater detail in the testimony of Mr. Jon P. Boizelle, power costs
7 comprise almost ten percent of the Operations and Maintenance Expense on a
8 consolidated basis and in the Anthem Wastewater District, that percentage is
9 approximately seventeen percent. With a power cost adjustor mechanism, changes
10 in electric service rates, whether increases or decreases, can be recovered from or
11 refunded to customers in a more timely fashion.

12 **F Sales of Effluent**

13 **Q. IS THE COMPANY PROPOSING ANY CHANGE TO ITS CURRENT**
14 **EFFLUENT RATES?**

15 A. No, not at this time. The Company has contractual arrangements with its current
16 customers that purchase effluent that are based on the tariffed rates in the districts
17 that have effluent available for reuse.

18 **Q. IF THE COMMISSION APPROVES THE COMPANY'S REQUEST TO**
19 **CONSOLIDATE ITS FIVE WASTEWATER DISTRICTS IN THIS CASE,**
20 **IS EWAZ PROPOSING A CONSOLIDATED EFFLUENT TARIFF RATE?**

21 A. No. However, because the available effluent is currently under sales agreements,
22 the Company is requesting a tariff for all of its districts that would allow EWAZ to
23 sell effluent at the market rate pursuant to individual contracts. By doing so, the
24 current customers are protected from cost increases that could drive them to

1 alternative sources of non-potable water such as an untreated well, and leave the
2 Company without a viable option for disposing of its effluent. Under the
3 Company's proposal, if additional sources of effluent are available, market
4 conditions can be used to determine the price to charge customers for this
5 resource.

6 **G Low-Income Programs**

7 **Q. IS EWAZ PROPOSING TO ADD LOW-INCOME PROGRAMS TO**
8 **TARIFFS IN ANY OF THE DISTRICTS IN THIS PROCEEDING?**

9 A. Yes. The Company is proposing to begin low income programs in each of its
10 wastewater districts. In the last Mohave Wastewater rate case, the Commission
11 authorized a program; however, due to an oversight on the Company's part, a low-
12 income credit was not requested. The Company is proposing to begin its low-
13 income program in the five wastewater districts by reducing the monthly
14 wastewater rate by \$5.00 per month for customers who are eligible.

15 **Q. WHAT ELIGIBILITY CRITERIA WILL CUSTOMERS BE REQUIRED**
16 **TO SATISFY?**

17 A. Currently in our water districts that have low-income programs, customers must
18 demonstrate that they are full-year residents and that their income is less than
19 150% of the annual federal poverty guidelines. In addition, customers are required
20 to re-apply annually to verify that they are still eligible.

21 **Q. HOW WILL THE LOW-INCOME PROGRAM BE STRUCTURED IN**
22 **THESE DISTRICTS?**

23 A. The low-income programs for the wastewater districts will be very similar to the
24 water districts' programs. The number of participants eligible for low income

discounts will mirror the water districts and will be set as follows:

Agua Fria Wastewater	200
Anthem Wastewater	150
Mohave Wastewater	150
Sun City Wastewater	1,000
Sun City West Wastewater	500

Q. HOW WILL THE LOW-INCOME DISCOUNT BE RECOVERED BY THE COMPANY?

A. The Company has included a *pro forma* adjustment sponsored by Ms. Murrey that expenses the annual cost of providing a \$5.00 discount for each potential participant. By including the cost in the overall cost of service, all customers contribute to the program; unlike the water side of the business, there is no volumetric basis over which to apply the charge.

Q. HAS THE COMPANY DETERMINED HOW IT WILL HANDLE OVER-OR UNDER-COLLECTIONS FROM THE SURCHARGE?

A. Yes. The Company will monitor the annual low income discounts given to customers and reduce the annual expense included in rates by the amount of discounts provided to customers to determine whether there has been an over- or under-collection of the program costs. Any over- or under- collection, will be recorded in a balancing account and used to offset the subsequent year's low-income program costs. The balancing account will be monitored and a filing made with the Commission to address and large accumulation of customers' collections.

H Depreciation Rates

**Q. IN DECISION NO. 75268, THE COMMISSION DIRECTED EWAZ TO
HAVE AN INDEPENDENT STUDY PERFORMED AND SUBMITTED IN
ITS NEXT RATE CASE. HAS THE COMPANY COMPLIED WITH THIS
DIRECTIVE?**

A. Yes. The Company retained the services of Mr. John F. Guastella to conduct a depreciation study of the districts included in this Application and the results of his study are discussed in detail in his direct testimony.

**Q. IS EWAZ REQUESTING APPROVAL BY THE COMMISSION OF
REVISED DEPRECIATION RATES IN THIS APPLICATION?**

A. Yes. Mr. Guastella has an exhibit attached to his direct testimony that sets forth the rates that the Company is asking the Commission to approve. In summary, the rates that Mr. Guastella is recommending are consistent with the depreciation rates for wastewater utilities that the Commission Staff has previously recommended except for the National Association of Regulated Utility Commissioner's ("NARUC") accounts for Pumping Equipment (Account 370) and Treatment & Disposal Equipment (Account 380).

I Deployed Service Member Tariff and Deferral Accounting

**Q. HAS EWAZ RECEIVED REQUESTS FROM SERVICE PERSONNEL FOR
A WAIVER OF WASTEWATER SERVICE CHARGES DURING
PERIODS OF DEPLOYMENT?**

A. Yes. Given the Company's close proximity to the Luke Air Force base, EWAZ's customer service personnel have requested a waiver of wastewater service charges when they are deployed away from their residence.

1 **Q. HAS EWAZ EVALUATED THE COST TO PROVIDE SUCH A WAIVER**
2 **OF WASTEWATER SERVICE CHARGES?**

3 A. Due to the uncertainties surrounding the potential number of service members that
4 might qualify for such a waiver, the Company is unable to quantify the costs for
5 such a program, however, EWAZ has identified some qualifying criteria that
6 would limit the eligibility for such a waiver.

7 **Q. WHAT ARE THE QUALIFYING CRITERIA THAT EWAZ HAS**
8 **IDENTIFIED?**

9 A. The qualifying criteria and the participant levels are the discussed in detail in the
10 testimony of Ms. Sarah M. Mahler. In addition to the qualifying criteria, the
11 Company would work with the housing department at Luke Air Force base to
12 insure that the appropriate limitations are in place to reduce potential abuse
13 resulting from a service member's personal choices.

14 **Q. IS EWAZ SEEKING AN ACCOUNTING ORDER FOR DEFERRAL**
15 **ACCOUNTING IN ADDITION TO APPROVAL OF THE PROPOSED**
16 **TARIFF?**

17 A. Yes. Because we are unsure of the potential cost of such a program, the Company
18 is requesting to defer the wastewater service charges that are waived pursuant to
19 this tariff, if granted. The deferred charges would be included in the costs in the
20 Company's next rate case. Any modifications to the tariff that may arise based on
21 the program's actual experience could also be proposed at that time.

VI. DECONSOLIDATED REVENUE REQUIREMENTS AND COST OF SERVICE

Q. HAS THE COMPANY PREPARED REVENUE REQUIREMENT CALCULATIONS FOR DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER TREATMENT FACILITY?

A. Yes. Decision No. 74881 required the Company to submit as part of this rate case application information, including cost of service studies for each district, to allow parties to the case to examine the information on a fully deconsolidated basis by wastewater treatment facility. Exhibit SLH-2 titled "Wastewater Deconsolidation by Wastewater Treatment Facility" contains Schedules A-1s, B-1s, and C-1s for the "new" districts listed below:

<u>Deconsolidated District</u>	<u>Wastewater Treatment Facility</u>
Northwest Valley Wastewater Facility	Northwest Valley Regional Water Reclamation
Anthem Wastewater	Anthem Wastewater Treatment Plant
Wishing Well Wastewater	Wishing Well Water Reclamation Facility
Arizona Gateway Wastewater	Arizona Gateway Treatment Plant
Sun City Wastewater	Tolleson Wastewater Treatment Plant ⁴
Verrado Wastewater	Verrado Water Reclamation Facility
Russell Ranch Wastewater	Russell Ranch Water Reclamation Facility

Q. PLEASE SUMMARIZE THE REQUESTED INCREASE BY DECONSOLIDATED DISTRICT IN THIS APPLICATION.

⁴ Tolleson Wastewater Treatment Plant is owned by the City of Tolleson.

A. EWAZ's requested revenue increase, rate base and operating expenses for the deconsolidated proposal is summarized in Exhibit SLH-2 Summary of Schedule A-1s, B-1s and C-1s.

The proposed revenue increases and associated percentage increases for the deconsolidated districts are summarized in Table 3 below.

Table 3. Deconsolidated by Treatment Facility Summary

District	Fair Value Rate Base	Operating Income	Revenue Increase	Percentage Increase
Northwest Valley Wastewater	\$39,533,587	\$1,311,273	\$ 1,690,111	16.1%
Anthem Wastewater	\$20,837,799	\$ 711,844	\$ 1,041,624	15.0%
Wishing Well Wastewater	\$5,215,048	\$ 314,854	\$ 74,694	5.0%
Arizona Gateway Wastewater	\$ 319,440	\$(64,063)	\$ 130,832	593.3%
Sun City Wastewater	\$36,618,889	\$1,429,896	\$ 1,360,718	15.2%
Verrado Wastewater	\$5,511,049	\$(5,511)	\$ 649,651	24.2%
Russell Ranch Wastewater	\$2,463,210	\$ 12,172	\$ 205,878	116.5%
Totals	\$110,499,022	\$3,710,465	\$ 5,153,508	16.8%

Q. IS IT STILL THE COMPANY'S POSITION THAT FURTHER DECONSOLIDATION OF THE EXISTING WASTEWATER DISTRICTS WOULD BE BAD PUBLIC POLICY AND RESULT IN FURTHER CUSTOMER DISSATISFACTION?

A. Yes. From the analysis done while satisfying the requirements of the Commission's decision, there are no benefits to be achieved by further

1 deconsolidation of the Company's existing districts and consolidation, in the long-
2 term will provide economies of scale that over time will benefit all customers.

3 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

4 **A. Yes.**

5

EXHIBIT SLH-1

EPCOR Water Arizona

Wastewater Consolidation - Agua Fria, Anthem, Mohave, Sun City, & Sun City West

Test Year Ended December 31, 2015

Computation of Increase in Gross Revenue Requirement

EXHIBIT SLH-1
Page 1 of 6

Summary of Schedule A-1s		7G		7L		7N		7C		7E	
Line No.	Total Wastewater Districts	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater					
1	\$ 94,125,922	\$12,816,758	\$18,711,412	\$5,286,204	\$30,970,944	\$26,340,603					
2											
3	\$ 3,710,348	\$641,505	\$711,844	\$250,792	\$1,429,896	\$676,312					
4											
5	3.94%	5.01%	3.80%	4.74%	4.62%	2.57%					
6											
7	\$ 6,872,081	\$930,878	\$1,350,878	\$376,881	\$2,264,692	\$1,948,751					
8											
9	7.07%	7.07%	7.07%	7.07%	7.07%	7.07%					
10	0.23%	0.19%	0.15%	0.06%	0.24%	0.33%					
11	7.30%	7.26%	7.22%	7.13%	7.31%	7.40%					
12											
13	\$ 3,161,732	\$289,374	\$639,033	\$126,090	\$834,796	\$1,272,439					
14											
15	1.6300	1.6300	1.6300	1.6300	1.6300	1.6300					
16											
17	Increase in Gross Revenue Requirement	\$ 5,153,624	\$ 471,679	\$ 1,041,624	\$ 205,526	\$ 1,360,718	\$ 2,074,076				
18											
19											
20											
21											
22	Test Year Adjusted Wastewater Revenue	\$ 30,732,536	\$6,050,910	\$6,922,913	\$1,502,212	\$8,936,765	\$7,319,736				
23											
24	Total Wastewater Revenue with Increase	\$ 35,886,159	\$ 6,522,589	\$ 7,964,537	\$ 1,707,739	\$ 10,297,483	\$ 9,393,812				
25											
26	Percent Rate Increase	16.8%	7.8%	15.0%	13.7%	15.2%	28.3%				
27											
28	Test Year Adjusted Current ROE	5.10%	6.12%	4.80%	-1.50%	4.97%	5.04%				

EPCOR Water Arizona

Wastewater Consolidation - Agua Fria, Anthem, Mohave, Sun City, & Sun City West

Test Year Ended December 31, 2015

Summary of Fair Value Rate Base (FVRB)

EXHIBIT SLH-1
Page 2 of 6

Line No.	Summary of Schedule B-1s	Total Wastewater Districts	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater
1	Gross Utility Plant in Service	\$349,400,037	\$102,041,515	\$70,463,581	\$12,721,712	\$71,932,085	\$92,241,143
2							
3							
3	<u>Less:</u>						
4	Accumulated Depreciation	173,612,202	33,785,118	34,823,597	3,379,287	45,304,931	56,319,268
5							
6	Net Utility Plant in Service	\$175,787,836	\$68,256,397	\$35,639,984	\$9,342,425	\$26,627,153	\$35,921,876
7							
8							
9							
8	<u>Less:</u>						
9	Advances in Aid of Construction	\$39,607,129	\$27,460,269	\$7,303,064	\$1,894,501	\$2,775,658	\$173,637
10							
11	Contribution in Aid of Construction -						
12	Net of Amortization	34,450,890	25,002,747	6,143,201	2,058,896	869,251	376,796
13							
14	Customer Meter Deposits	-	-	-	-	-	-
15	Deferred Income Taxes & Credits	8,324,146	1,043,959	1,239,083	206,913	3,474,833	2,359,357
16	Investment Tax Credits	-	-	-	-	-	-
17	Regulatory Liabilities	1,434					
18							
19	<u>Plus:</u>						
20	Deferred Debts	17,865,143	-	-	377,396	17,487,746	-
21	Working Capital Allowance	(771,029)	(63,731)	(116,838)	(23,594)	(376,269)	(190,598)
22	Utility Plant Acquisition Adjustment	-	-	-	-	-	-
23							
24	Total Rate Base	\$110,498,351	\$14,685,691	\$20,837,799	\$5,534,484	\$36,618,889	\$32,821,488
25							

EPCOR Water Arizona

Wastewater Consolidation - Agua Fria, Anthem, Mohave, Sun City, & Sun City West

Test Year Ended December 31, 2015

Summary of Original Cost Rate Base (OCRB)

EXHIBIT SLH-1
Page 3 of 6

Line No.	Summary of Schedule B-1s	Total Wastewater Districts	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater
1	Gross Utility Plant in Service	\$248,350,789	\$83,026,276	\$54,637,653	\$11,071,227	\$36,694,093	\$62,921,540
2							
3	<u>Less:</u>						
4	Accumulated Depreciation	97,442,114	23,418,802	22,614,261	2,176,407	15,180,849	34,051,795
5							
6	Net Utility Plant in Service	\$150,908,675	\$59,607,474	\$32,023,392	\$8,894,820	\$21,513,243	\$28,869,745
7							
8	<u>Less:</u>						
9	Advances in Aid of Construction	\$34,728,554	\$23,980,716	\$6,561,980	\$1,803,733	\$2,242,576	\$139,549
10							
11	Contribution in Aid of Construction -						
12	Net of Amortization	30,319,789	21,834,592	5,519,815	1,960,252	702,306	302,824
13							
14	Customer Meter Deposits	-	0	0	0	0	0
15	Deferred Income Taxes & Credits	6,925,664	911,677	1,113,346	197,000	2,807,470	1,896,172
16	Investment Tax Credits	-	0	0	0	0	0
17	Regulatory Liabilities	1,434					
18							
19	<u>Plus:</u>						
20	Deferred Debits	15,963,717	0	0	377,396	15,586,321	0
21	Working Capital Allowance	(771,029)	(63,731)	(116,838)	(23,594)	(376,269)	(190,598)
22	Utility Plant Acquisition Adjustment	-	0	0	0	0	0
23							
24	Total Rate Base	\$94,125,922	\$12,816,758	\$18,711,412	\$5,286,204	\$30,970,944	\$26,340,603
25							

EPCOR Water Arizona

Wastewater Consolidation - Agua Fria, Anthem, Mohave, Sun City, & Sun City West

Test Year Ended December 31, 2015

Summary of Reconstructed Cost New Depreciated (RCND) Rate Base

EXHIBIT SLH-1
Page 4 of 6

Line No.	Summary of Schedule B-1s	Total Wastewater Districts	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater
1	Gross Utility Plant in Service	\$450,449,286	\$121,056,754	\$86,289,510	\$14,372,198	\$107,170,077	\$121,560,747
2							
3	<u>Less:</u>						
4	Accumulated Depreciation	249,782,289	44,151,435	47,032,933	4,582,167	75,429,014	78,586,740
5							
6	Net Utility Plant in Service	\$200,666,997	\$76,905,320	\$39,256,577	\$9,790,031	\$31,741,063	\$42,974,006
7							
8	<u>Less:</u>						
9	Advances in Aid of Construction	\$44,485,703	\$30,939,822	\$8,044,147	\$1,985,268	\$3,308,741	\$207,725
10							
11	Contribution in Aid of Construction -						
12	Net of Amortization	38,581,991	28,170,901	6,766,586	2,157,540	1,036,196	450,768
13							
14	Customer Meter Deposits	-	0	0	0	0	0
15	Deferred Income Taxes & Credits	9,722,627	1,176,242	1,364,820	216,827	4,142,196	2,822,543
16	Investment Tax Credits	-	0	0	0	0	0
17	Regulatory Liabilities	1,434					
18							
19	<u>Plus:</u>						
20	Deferred Debits	19,766,568	0	0	377,396	19,389,172	0
21	Working Capital Allowance	(771,029)	(63,731)	(116,838)	(23,594)	(376,269)	(190,598)
22	Utility Plant Acquisition Adjustment	-	0	0	0	0	0
23							
24	Total Rate Base	\$126,870,781	\$16,554,623	\$22,964,185	\$5,782,765	\$42,266,834	\$39,302,373
25							

EPCOR Water Arizona

Wastewater Consolidation - Agua Fria, Anthem, Mohave, Sun City, & Sun City West

Test Year Ended December 31, 2015

Adjusted Test Year Income Statement

EXHIBIT SLH-1
Page 5 of 6

Line No.	Summary of Schedule C-1s	Total Wastewater Districts	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater
1	Revenues						
2	Sewer Revenues	\$ 30,732,536	\$ 6,050,910	\$ 6,922,913	\$ 1,502,212	\$ 8,936,765	\$ 7,319,736
3	Other Revenues	25,631	135	166	5,525	19,670	136
4	Total Revenues						
5		\$ 30,758,167	\$ 6,051,044	\$ 6,923,079	\$ 1,507,737	\$ 8,956,435	\$ 7,319,872
6	Operating Expenses						
7	Labor	\$ 3,419,313	\$ 780,616	\$ 951,919	\$ 232,158	\$ 619,154	\$ 835,467
8	Purchased Water	4,495	907	75	17	94	3,401
9	Fuel & Power	1,321,511	277,365	562,930	40,641	19,029	421,546
10	Chemicals	464,753	104,828	106,353	7,334	26	246,213
11	Waste Disposal	2,301,385	42,185	130,500	9,197	1,969,411	150,092
12	Intercompany Support Services	-	-	-	-	-	-
13	Corporate Allocation	911,614	205,870	200,121	45,356	251,978	208,289
14	Outside Services	582,844	166,315	136,678	31,207	166,033	82,611
15	Group Insurance	1,255,124	291,114	354,036	72,007	226,989	310,977
16	Pensions	-	-	-	-	-	-
17	Regulatory Expense	423,721	113,634	78,067	51,671	98,307	82,042
18	Insurance Other Than Group	386,522	95,040	87,554	25,570	87,177	91,181
19	Customer Accounting	1,848,354	245,895	310,982	59,302	736,343	495,832
20	Rents	88,267	19,191	18,520	4,160	25,608	20,789
21	General Office Expense						
22	Miscellaneous						
23	Maintenance Expense	971,078	233,836	240,399	51,027	138,357	307,459
24	Depreciation & Amortization	9,927,824	2,205,111	2,384,678	425,234	2,164,692	2,748,108
25	General Taxes-Property	1,363,649	241,267	287,317	68,930	384,306	381,829
26	General Taxes-Other	288,227	63,169	83,049	18,794	51,905	71,311
27	Income Taxes	864,278	199,909	156,281	74,129	410,508	23,451
28							
29	Total Operating Expenses	\$ 27,047,818	\$ 5,409,539	\$ 6,211,234	\$ 1,256,945	\$ 7,526,539	\$ 6,643,560
30	Utility Operating Income	\$ 3,710,348	\$ 641,505	\$ 711,844	\$ 250,792	\$ 1,429,896	\$ 676,312
31	Other Income & Deductions						
32	Other Income & Deductions	\$ 329,487	\$ 315	\$ 306	\$ 328,162	\$ 385	\$ 319
33	Interest Expense	2,277,847	310,166	452,816	127,926	749,497	637,443
34	Other Expense	(202,453)	(163,716)	(11)	(2)	(23,332)	(15,392)
35	Gain/Loss Sale of Fixed Assets	-	-	-	-	-	-
36	Total Other Income & Deductions	\$ 2,404,881	\$ 146,764	\$ 453,112	\$ 456,086	\$ 726,551	\$ 622,369
37	Net Profit (Loss)	\$ 1,634,954	\$ 494,741	\$ 258,733	\$ (205,294)	\$ 703,345	\$ 53,943

F:\Rates\Rate Cases\1 - 15 AZ Wastewater Rate Case\EPCOR Direct Testimony\Hubbard\EXHIBIT SLH-1 SUMMARY A-1, B-1, C-1.xlsx [C-1 Summ (Present)]

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4/29/16

EPCOR Water Arizona

Wastewater Consolidation - Agua Fria, Anthem, Mohave, Sun City, & Sun City West

Test Year Ended December 31, 2015

Summary of Cost of Capital

Total Company - EPCOR Water - Proposed

EXHIBIT SLH-1

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		<u>End of Test Year</u>				<u>End of Projected Year</u>			
Line	Item of Capital	Dollar	Percent	Cost	Weighted	Dollar	Percent	Cost	Weighted
No.		Amount	Total	Rate	Cost	Amount	Total	Rate	Cost
1	Long-Term Debt	\$ 231,000,000	53.93%	4.29%	2.31%	\$ 231,000,000	56.36%	4.29%	2.42%
2									
3	Short-Term Debt	\$ 18,480,843	4.31%	0.20%	0.01%	\$ -	0.00%	0.20%	0.00%
4									
5	Stockholder's Equity	\$ 178,868,806	41.76%	10.65%	4.45%	\$ 178,868,806	43.64%	10.65%	4.65%
6									
7	Totals	\$ 428,349,649	100.00%		6.77%	\$ 409,868,806	100.00%		7.07%
8		Sum Line [1-5]				Sum Line [1-5]			

EXHIBIT SLH-2

EPCOR Water Arizona
Districts Deconsolidated by Wastewater Treatment Facility
Test Year Ended December 31, 2015
Computation of Increase in Gross Revenue Requirement

Summary of Schedule A-1's		Total Wastewater Districts	Northwest Valley Wastewater	Anthem Wastewater	Wishing Well Wastewater	Arizona Gateway Wastewater	Sun City Wastewater	Verrado Wastewater	Russell Ranch Wastewater
Line No.									
1	Original Cost Rate Base	\$ 94,126,593	\$31,742,632	\$18,711,412	\$5,078,201	\$208,007	\$30,970,944	\$5,574,571	\$1,840,826
2									
3	Adjusted Operating Income	\$ 3,710,465	\$1,311,273	\$711,844	\$314,854	(\$64,063)	\$1,429,896	(\$5,511)	\$12,172
4									
5	Current Rate of Return	3.94%	4.13%	3.80%	6.20%	-30.80%	4.62%	-0.10%	0.66%
6									
7	Required Operating Income	\$ 6,872,128	\$2,348,151	\$1,350,878	\$360,679	\$16,202	\$2,264,692	\$393,048	\$138,477
8									
9	Required Rate of Return	7.07%	7.07%	7.07%	7.07%	7.07%	7.07%	7.07%	7.07%
10	Fair Value Rate of Return	0.23%	0.33%	0.15%	0.03%	0.72%	0.24%	-0.02%	0.45%
11	Overall Rate of Return	7.30%	7.40%	7.22%	7.10%	7.79%	7.31%	7.05%	7.52%
12									
13	Operating Income Deficiency	\$ 3,161,662	\$1,036,878	\$639,033	\$45,825	\$80,265	\$834,796	\$398,559	\$126,305
14									
15	Gross Revenue Conversion Factor	1.6300	1.6300	1.6300	1.6300	1.6300	1.6300	1.6300	1.6300
16									
17	Increase in Gross Revenue Requirement	\$ 5,153,508	\$1,690,111	\$ 1,041,624	\$ 74,694	\$ 130,832	\$ 1,360,718	\$ 649,651	\$ 205,878
18									
19									
20									
21									
22	Test Year Adjusted Wastewater Revenue	\$ 30,732,536	\$10,505,765	\$6,922,913	\$1,480,160	\$22,052	\$8,936,765	\$2,688,119	\$176,761
23									
24	Total Wastewater Revenue with Increase	\$ 35,886,044	\$12,195,876	\$ 7,964,537	\$ 1,554,855	\$ 152,885	\$ 10,297,483	\$ 3,337,770	\$ 382,639
25									
26	Percent Rate Increase	16.8%	16.1%	15.0%	5.0%	593.3%	15.2%	24.2%	116.5%
27									
28	Test Year Adjusted Current ROE	5.10%	5.25%	4.80%	-1.30%	-6.37%	4.97%	6.15%	5.52%

EPCOR Water Arizona
Districts Deconsolidated by Wastewater Treatment Facility
Test Year Ended December 31, 2015
Summary of Fair Value Rate Base (FVRB)

EXHIBIT SLH-2
Page 2 of 6

Line No.	Summary of Schedule B-1s	Total Wastewater Districts	Northwest Valley Wastewater	Anthem Wastewater	Wishing Well Wastewater	Arizona Gateway Wastewater	Sun City Wastewater	Verrado Wastewater	Russell Ranch Wastewater
1	Gross Utility Plant in Service	\$ 349,400,037	\$123,614,612	\$70,463,581	\$10,851,637	\$1,870,076	\$71,932,085	\$63,634,693	\$7,033,353
2									
3									
4	Less:								
5	Accumulated Depreciation	173,612,201	69,088,525	34,823,597	3,013,717	365,571	45,304,931	19,482,719	1,533,142
6	Net Utility Plant in Service	\$175,787,836	\$54,526,087	\$35,639,984	\$7,837,920	\$1,504,505	\$26,627,153	\$44,151,974	\$5,500,212
7									
8									
9	Less:								
10	Advances in Aid of Construction	\$ 39,607,129	\$6,900,569	\$7,303,064	\$1,400,480	\$494,021	\$2,775,658	\$20,733,337	\$0
11	Contribution in Aid of Construction -								
12	Net of Amortization	34,450,889	4,942,770	6,143,201	1,368,011	690,884	869,251	17,436,375	3,000,398
13									
14	Customer Meter Deposits	-	-	-	-	-	-	-	-
15	Deferred Income Taxes & Credits	8,324,146	2,932,104	1,239,083	206,371	542	3,474,833	439,292	31,921
16	Investment Tax Credits	-	-	-	-	-	-	-	-
17	Regulatory Liabilities	1,434	-	-	1,430	4	-	-	-
18									
19	Plus:								
20	Deferred Debits	17,865,143	-	-	377,396	-	17,487,746	-	-
21	Working Capital Allowance	(770,358)	(217,058)	(116,838)	(23,977)	386	(376,269)	(31,922)	(4,682)
22	Utility Plant Acquisition Adjustment	-	-	-	-	-	-	-	-
23									
24	Total Rate Base	\$110,499,023	\$39,533,587	\$20,837,799	\$5,215,048	\$319,440	\$36,618,889	\$5,511,049	\$2,463,210
25									

EPCOR Water Arizona

Districts Deconsolidated by Wastewater Treatment Facility

Test Year Ended December 31, 2015

Summary of Original Cost Rate Base (OCRB)

EXHIBIT SLH-2
Page 3 of 6

Line No.	Summary of Schedule B-1s	Total Wastewater Districts	Northwest Valley Wastewater	Anthem Wastewater	Wishing Well Wastewater	Arizona Gateway Wastewater	Sun City Wastewater	Verrado Wastewater	Russell Ranch Wastewater
1	Gross Utility Plant in Service	\$ 248,350,789	\$87,265,678	\$54,637,653	\$9,536,131	\$1,535,096	\$36,694,093	\$53,082,698	\$5,599,440
2									
3	<u>Less:</u>								
4	Accumulated Depreciation	97,442,114	42,605,315	22,614,261	1,977,587	198,820	15,180,849	13,759,437	1,105,845
5									
6	Net Utility Plant in Service	\$150,908,675	\$44,660,363	\$32,023,392	\$7,558,544	\$1,336,276	\$21,513,243	\$39,323,262	\$4,493,595
7									
8	<u>Less:</u>								
9	Advances in Aid of Construction	\$ 34,728,554	\$6,014,096	\$6,561,980	\$1,333,381	\$470,352	\$2,242,576	\$18,106,169	\$0
10									
11	Contribution in Aid of Construction -								
12	Net of Amortization	30,319,788	4,290,233	5,519,815	1,302,468	657,783	702,306	15,226,972	2,620,211
13									
14	Customer Meter Deposits	-	0	0	0	0	0	0	0
15	Deferred Income Taxes & Credits	6,925,664	2,396,344	1,113,346	196,484	516	2,807,470	383,628	27,876
16	Investment Tax Credits	-	0	0	0	0	0	0	0
17	Regulatory Liabilities	1,434	0	0	1,430	4	0	0	0
18									
19	<u>Plus:</u>								
20	Deferred Debits	15,963,717	0	0	377,396	0	15,586,321	0	0
21	Working Capital Allowance	(770,358)	(217,058)	(116,838)	(23,977)	386	(376,269)	(31,922)	(4,682)
22	Utility Plant Acquisition Adjustment	-	0	0	0	0	0	0	0
23									
24	Total Rate Base	\$94,126,593	\$31,742,632	\$18,711,412	\$5,078,201	\$208,007	\$30,970,944	\$5,574,571	\$1,840,826
25									

EPCOR Water Arizona
Districts Deconsolidated by Wastewater Treatment Facility
Test Year Ended December 31, 2015
Summary of Reconstructed Cost New Depreciated (RCND) Rate Base

Line No.	Summary of Schedule B-1s	Total Wastewater Districts	Northwest Valley Wastewater	Anthem Wastewater	Wishing Well Wastewater	Arizona Gateway Wastewater	Sun City Wastewater	Verrado Wastewater	Russell Ranch Wastewater
1	Gross Utility Plant in Service	\$ 450,449,286	\$159,963,547	\$86,289,510	\$12,167,142	\$2,205,056	\$107,170,077	\$74,186,688	\$8,467,267
2									
3	Less:								
4	Accumulated Depreciation	249,762,289	95,571,735	47,032,933	4,049,846	532,321	75,429,014	25,206,001	1,960,438
5									
6	Net Utility Plant in Service	\$200,666,997	\$64,391,811	\$39,256,577	\$8,117,297	\$1,672,734	\$31,741,063	\$48,980,686	\$6,506,828
7									
8	Less:								
9	Advances in Aid of Construction	\$ 44,485,703	\$7,787,042	\$8,044,147	\$1,467,578	\$517,690	\$3,308,741	\$23,360,505	\$0
10									
11	Contribution in Aid of Construction -								
12	Net of Amortization	38,581,991	5,595,306	6,766,586	1,433,554	723,985	1,036,196	19,645,777	3,380,586
13									
14	Customer Meter Deposits	-	0	0	0	0	0	0	0
15	Deferred Income Taxes & Credits	9,722,627	3,467,863	1,364,820	216,259	568	4,142,196	494,955	35,966
16	Investment Tax Credits	-	0	0	0	0	0	0	0
17	Regulatory Liabilities	1,434	0	0	1,430	4	0	0	0
18									
19	Plus:								
20	Deferred Debits	19,766,568	0	0	377,396	0	19,389,172	0	0
21	Working Capital Allowance	(770,358)	(217,058)	(116,838)	(23,977)	386	(376,269)	(31,922)	(4,682)
22	Utility Plant Acquisition Adjustment	-	0	0	0	0	0	0	0
23									
24	Total Rate Base	\$126,871,453	\$47,324,542	\$22,964,185	\$5,351,896	\$430,874	\$42,266,834	\$5,447,527	\$3,085,595
25									

EPCOR Water Arizona
Districts Deconsolidated by Wastewater Treatment Facility
Test Year Ended December 31, 2015
Adjusted Test Year Income Statement

EXHIBIT SLH-2
Page 5 of 6

Line No.	Summary of Schedule C-1s	Total Wastewater Districts	Northwest Valley Wastewater	Anthem Wastewater	Wishing Well Wastewater	Arizona Gateway Wastewater	Sun City Wastewater	Verrado Wastewater	Russell Ranch Wastewater
1	Revenues								
2	Sewer Revenues	\$ 30,732,536	\$ 10,505,765	\$ 6,922,913	\$ 1,480,160	\$ 22,052	\$ 8,936,765	\$ 2,688,119	\$ 176,761
3	Other Revenues	25,631	194	166	5,114	411	19,670	71	6
4	Total Revenues								
5		\$ 30,758,167	\$ 10,505,959	\$ 6,923,079	\$ 1,485,274	\$ 22,464	\$ 8,956,435	\$ 2,688,190	\$ 176,768
6	Operating Expenses								
7	Labor	\$ 3,419,313	\$ 1,219,820	\$ 951,919	\$ 171,797	\$ 60,361	\$ 619,154	\$ 363,198	\$ 33,065
8	Purchased Water	4,495	4,246	75	16	1	94	57	5
9	Fuel & Power	1,321,511	582,725	562,930	37,667	2,973	19,029	106,574	9,611
10	Chemicals	464,753	323,166	106,353	6,797	537	26	25,581	2,294
11	Waste Disposal	2,301,385	186,843	130,500	8,513	684	1,969,411	4,981	453
12	Intercompany Support Services	-	-	-	-	-	-	-	-
13	Corporate Allocation	911,614	286,011	200,121	41,982	3,375	251,978	108,288	9,858
14	Outside Services	582,844	156,837	136,678	28,885	2,322	166,033	84,404	7,684
15	Group Insurance	1,255,124	453,434	354,036	53,285	18,722	226,989	136,253	12,404
16	Pensions	-	-	-	-	-	-	-	-
17	Regulatory Expense	423,721	123,330	78,067	47,486	4,186	98,307	65,947	6,398
18	Insurance Other Than Group	386,522	127,609	87,554	21,025	4,545	87,177	50,392	8,219
19	Customer Accounting	1,848,354	600,986	310,982	55,454	3,847	736,343	129,690	11,051
20	Rents	88,267	28,967	18,520	3,850	310	25,608	10,094	919
21	General Office Expense	354,491	129,906	73,383	19,647	1,579	89,762	36,858	3,356
22	Miscellaneous	270,369	92,422	48,393	18,219	767	86,860	21,816	1,893
23	Maintenance Expense	971,078	435,318	240,399	47,230	3,797	138,357	97,133	8,843
24	Depreciation & Amortization	9,927,824	3,494,119	2,384,678	410,487	14,747	2,164,692	1,400,742	58,358
25	General Taxes-Property	1,363,469	508,730	287,317	67,903	1,027	384,306	107,135	7,051
26	General Taxes-Other	288,227	102,542	83,049	14,358	4,436	51,905	29,272	2,665
27	Income Taxes	864,339	327,672	156,281	115,817	(41,688)	410,508	(84,717)	(19,534)
28									
29	Total Operating Expenses	\$ 27,047,700	\$ 9,194,685	\$ 6,211,234	\$ 1,170,419	\$ 86,526	\$ 7,526,539	\$ 2,693,700	\$ 164,596
30	Utility Operating Income	\$ 3,710,466	\$ 1,311,273	\$ 711,844	\$ 314,854	\$ (64,063)	\$ 1,429,896	\$ (5,511)	\$ 12,172
31	Other Income & Deductions								
32	Other Income & Deductions	\$ 328,487	\$ 453	\$ 306	\$ 303,744	\$ 24,418	\$ 385	\$ 166	\$ 15
33	Interest Expense	2,277,864	768,172	452,816	122,892	5,034	749,497	134,905	44,548
34	Other Expense	(202,453)	(86,388)	(11)	(2)	(0)	(23,332)	(84,984)	(7,737)
35	Gain/Loss Sale of Fixed Assets	-	-	-	-	-	-	-	-
36	Total Other Income & Deductions	\$ 2,404,898	\$ 682,237	\$ 453,112	\$ 426,635	\$ 29,451	\$ 726,551	\$ 50,086	\$ 36,826
37	Net Profit (Loss)	\$ 1,635,056	\$ 629,037	\$ 258,733	\$ (111,780)	\$ (93,514)	\$ 703,345	\$ (55,597)	\$ (24,654)

EPCOR Water Arizona

Districts Deconsolidated by Wastewater Treatment Facility

Test Year Ended December 31, 2015

Summary of Cost of Capital

Total Company - EPCOR Water - Proposed

EXHIBIT SLH-2

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		<u>End of Test Year</u>				<u>End of Projected Year</u>			
Line	Item of Capital	Dollar Amount	Percent of Total	Cost Rate	Weighted Cost	Dollar Amount	Percent of Total	Cost Rate	Weighted Cost
1	Long-Term Debt	\$ 231,000,000	53.93%	4.29%	2.31%	\$ 231,000,000	56.36%	4.29%	2.42%
2									
3	Short-Term Debt	\$ 18,480,843	4.31%	0.20%	0.01%	\$ -	0.00%	0.20%	0.00%
4									
5	Stockholder's Equity	\$ 178,868,806	41.76%	10.65%	4.45%	\$ 178,868,806	43.64%	10.65%	4.65%
6									
7	Totals	\$ 428,349,649	100.00%		6.77%	\$ 409,868,806	100.00%		7.07%
8		Sum Line [1-5]				Sum Line [1-5]			

Brown Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
TOM FORESE
BOB BURNS
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF
EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT FAIR
VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR
INCREASES/DECREASES IN ITS RATES AND
CHARGES BASED THEREON FOR UTILITY
SERVICE BY ITS AGUA FRIA, ANTHEM,
MOHAVE, SUN CITY, AND SUN CITY WEST
WASTEWATER DISTRICTS AND FOR
CONSIDERATION OF CONSOLIDATION AND
DE-CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
ANDREW BROWN
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

**DIRECT TESTIMONY
OF
ANDREW BROWN
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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I. INTRODUCTION AND QUALIFICATIONS	1
II. PURPOSE OF TESTIMONY.....	2
III. POST-TEST YEAR CAPITAL PROJECTS	2
A Collection System (Gravity Sewer) Projects	6
B Lift Station & Force Main Projects	9
C Treatment Facility Projects.....	16

EXECUTIVE SUMMARY

Andrew Brown testifies in support of the post test year projects that the Company is seeking to include in rate base. These projects include the following:

District/Project	Completion (In-Service) Date	Amount
Anthem WW (7L):	Total	\$3,722,501
Permeate Piping Improvements	December 2016	275,000
Anthem WRF Effluent Recharge	June 2017	425,000
Anthem WRF Recharge Basin Conduit	March 2016	29,655
Anthem WRF – Bioreactor Diffuser Replacement (Phase 1 & 2)	December 2016	700,000
Anthem WRF – Splitter Box Rehab	August 2016	439,246
Plant and equipment	June 2017	1,388,225
Valves, Services, manholes	June 2017	465,375
Mohave WW (7N):	Total	\$521,416
Wishing Well WWTP Concrete Repair	August 2016	200,000
Plant and equipment	June 2017	208,276
Valves, Services, manholes	June 2017	113,140
Sun City WW (7C):	Total	\$8,012,044
99 th Ave Interceptor Rehab	March 2016	511,140
Sewer Main Replacement, 103 rd Ave – Thunderbird to Bright Angel	May 2016	340,963
111 th Ave LS Force Main Replacement	February 2016	499,252
111 th Ave Lift Station Replacement	February 2017	740,000
Paradise Resort Lift Station Conversion	November 2016	1,171,444
99th Ave Interceptor Improvements at New River	December 2016	1,217,498
Plant and Equipment	June 2017	1,068,928
Valves, Services, Manholes	June 2017	241,735
Sewer Main Rehab	June 2017	2,221,084
Sun City West WW (7E):	Total	\$7,545,042
Bell Rd. LS Force Main	November 2016	5,987,710
Bell Rd. LS Pump #2 & #3	April 2016	144,911
Bell Rd. LS Flow Meter	June 2016	99,000
Meeker Blvd Sewer Main Rehab	January 2016	326,248
Plant and Equipment	June 2017	713,628
Valves, Services, Manholes	June 2017	273,545

Agua Fria (7G) WW:		Total	\$2,633,000
Verrado WRF Effluent Discharge		October 2016	329,347
Verrado WRF Office Building		June 2017	1,000,000
Plant and Equipment		June 2017	1,256,322
Valves, Services, Manholes		June 2017	47,331
Northwest Valley WRF (7H):		Total	\$4,457,266
NWVWRF Odor Control Replacement		June 2016	631,624
NWVWRF SES/ATC Replacement		October 2016	412,000
NWVWRF Splitter Box Modifications		May 2016	810,572
NWVWRF Diffuser & Blower Replacement		April 2016	732,394
Plant and Equipment		June 2017	1,870,676
EPCOR Water USA (6U):		Total	\$1,373,675
Enterprise Asset Management System*		June 2017	832,463
GIS Data Model		May 2016	91,212
Century Link- Fiber Optic		May 2016	450,000
*subsequent to finalization of the B schedules in this case, this project total cost was revised to \$1,572,000, which will be updated in rebuttal schedules			
EPCOR Water Arizona (7A):		Total	\$491,937
Tough Books		June 2017	11,937
Central Offices		June 2017	270,000
Large Vehicle Rehab		June 2017	210,000
Wastewater Only:		Total	\$473,000
Vactor Truck 2100 Tank		June 2017	360,000
Vactor Truck Chassis and dually/diesel		June 2017	113,000
Major Capital Investment¹		Total:	\$29,229,881
¹ Includes EPCOR Water USA (6U) and EPCOR Water Arizona (7A) in Total. These Capital Investments are allocated through pro forma adjustments.			

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND TELEPHONE NUMBER.

A. My name is Andrew Brown. My business address is 2355 W. Pinnacle Peak Road, Suite 300, Phoenix, AZ 85027. My business phone is 623-445-2497.

Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?

A. I am employed by EPCOR Water USA ("EWUS") as the Director of Engineering.

Q. PLEASE DESCRIBE YOUR PRIMARY RESPONSIBILITIES FOR THE COMPANY.

A. I am responsible for the planning, engineering, and project delivery of EPCOR Water Arizona Inc.'s ("EWAZ" or "Company") and EPCOR Water New Mexico Inc.'s capital programs along with the developer services and GIS functional areas. I am responsible for first identifying and prioritizing projects into the budgeting process, then providing oversight of the design and construction contracts to ensure compliance with assigned budget and schedule.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATION.

A. I have 32 years of experience as a civil engineer. I have spent the last 26 years engaged in the field of water and wastewater engineering in Arizona. The bulk of that experience included oversight of the design and construction of water and wastewater infrastructure projects.

Prior to joining EWUS, I was the Deputy Director of the Wastewater Engineering Division for the City of Phoenix Water Services Department in Arizona. While at Phoenix Water Services, I also served as Deputy Director of the Construction Management Division and was responsible for the construction phase of the majority of

capital water and wastewater infrastructure. I am a registered professional engineer in the state of Arizona and a member of several engineering and water/wastewater related professional organizations including the American Society of Civil Engineers ("ASCE"), AZ Water Association, and the American Public Works Association (APWA).

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I received my Bachelor of Science degree in Civil Engineering from Northern Arizona University in 1983.

Q. ARE YOU A REGISTERED PROFESSIONAL ENGINEER?

A. I am a registered Professional Engineer (Civil) in the state of Arizona.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. No.

II. PURPOSE OF TESTIMONY

Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.

A. My testimony will provide engineering support relating to post-test year capital project costs proposed to be included in the rate base of the districts in this Application. I will provide the justification for including these projects in the proposed rate bases and also provide the detail supporting the costs.

III. POST-TEST YEAR CAPITAL PROJECTS

Q. IS THE COMPANY PROPOSING ANY POST-TEST YEAR PLANT ADDITIONS IN THIS PROCEEDING?

A. Yes. The Company is seeking the inclusion in rate base of post-test year additions for a period of 18 months following the end of the test year. Post-test year plant additions are significant capital investments that are necessary to continue to provide safe, reliable wastewater service to our customers. Much of the capital investment is for the replacement of aging or failing infrastructure, which not only helps provide

uninterrupted service but also helps control our maintenance and electricity expenses that directly benefit customers. An 18-month period is requested due to the amount of work in progress, as well as the complexity of certain capital projects that may have been initiated late in the test year, with design and construction taking anywhere from 12 to 18 months to complete before putting new infrastructure in service.

There are post-test year projects in the following districts:

- Anthem Wastewater (7L)
- Mohave Wastewater (7N)
- Sun City Wastewater (7C)
- Sun City West Wastewater (7E)
- Agua Fria Wastewater (7G)
- Northwest Valley Water Reclamation Facility (7H)
- EPCOR Water USA (6U)
- EPCOR Water Arizona (7A)

For these districts, the Company is proposing post-test year plant additions of \$29,229,881 consisting of the projects summarized in Table 1 below. The proposed adjustment to the respective rate base for each district is presented and sponsored by Company witness Ms. Sarah M. Mahler.¹ All of the proposed additions to plant are necessary investments for the Company to continue to provide its customers with safe and reliable wastewater services.

Q. PLEASE IDENTIFY THE MAJOR PROJECTS THAT EWAZ IS REQUESTING TO INCLUDE IN POST-TEST YEAR PLANT ADDITIONS IN THIS PROCEEDING.

¹ See Schedule B-2.

- A. The proposed projects by district are summarized by project number and district in Table 1 below.

Table 1. Major Capital Investment by District

District/Project	Completion (In-Service) Date	Amount
Anthem WW (7L):		Total
		\$3,722,501
Permeate Piping Improvements	December 2016	275,000
Anthem WRF Effluent Recharge	June 2017	425,000
Anthem WRF Recharge Basin Conduit	March 2016	29,655
Anthem WRF – Bioreactor Diffuser Replacement (Phase 1 & 2)	December 2016	700,000
Anthem WRF – Splitter Box Rehab	August 2016	439,246
Plant and equipment	June 2017	1,388,225
Valves, Services, manholes	June 2017	465,375
Mohave WW (7N):		Total
		\$521,416
Wishing Well WWTP Concrete Repair	August 2016	200,000
Plant and equipment	June 2017	208,276
Valves, Services, manholes	June 2017	113,140
Sun City WW (7C):		Total
		\$8,012,044
99 th Ave Interceptor Rehab	March 2016	511,140
Sewer Main Replacement, 103 rd Ave – Thunderbird to Bright Angel	May 2016	340,963
111 th Ave LS Force Main Replacement	February 2016	499,252
111 th Ave Lift Station Replacement	February 2017	740,000
Paradise Resort Lift Station Conversion	November 2016	1,171,444
99th Ave Interceptor Improvements at New River	December 2016	1,217,498
Plant and Equipment	June 2017	1,068,928
Valves, Services, Manholes	June 2017	241,735
Sewer Main Rehab	June 2017	2,221,084
Sun City West WW (7E):		Total
		\$7,545,042
Bell Rd. LS Force Main	November 2016	5,987,710
Bell Rd. LS Pump #2 & #3	April 2016	144,911
Bell Rd. LS Flow Meter	June 2016	99,000
Meeker Blvd Sewer Main Rehab	January 2016	326,248
Plant and Equipment	June 2017	713,628

Valves, Services, Manholes		June 2017	273,545
Agua Fria (7G) WW:		Total	\$2,633,000
Verrado WRF Effluent Discharge		October 2016	329,347
Verrado WRF Office Building		June 2017	1,000,000
Plant and Equipment		June 2017	1,256,322
Valves, Services, Manholes		June 2017	47,331
Northwest Valley WRF (7H):		Total	\$4,457,266
NWVWRF Odor Control Replacement		June 2016	631,624
NWVWRF SES/ATC Replacement		October 2016	412,000
NWVWRF Splitter Box Modifications		May 2016	810,572
NWVWRF Diffuser & Blower Replacement		April 2016	732,394
Plant and Equipment		June 2017	1,870,676
EPCOR Water USA (6U):		Total	\$1,373,675
Enterprise Asset Management System*		June 2017	832,463
GIS Data Model		May 2016	91,212
Century Link- Fiber Optic		May 2016	450,000
*subsequent to finalization of the B schedules in this case, this project total cost was revised to \$1,572,000, which will be updated in rebuttal schedules			
EPCOR Water Arizona (7A):		Total	\$491,937
Tough Books		June 2017	11,937
Central Offices		June 2017	270,000
Large Vehicle Rehab		June 2017	210,000
Wastewater Only:		Total	\$473,000
Vactor Truck 2100 Tank		June 2017	360,000
Vactor Truck Chassis and dually/diesel		June 2017	113,000
Major Capital Investment		Total:	\$29,229,881
*Includes EPCOR Water USA (6U) and EPCOR Water Arizona (7A) in Total. These Capital Investments are allocated through pro forma adjustments.			

Q. PLEASE DISCUSS EACH PROJECT IN TABLE 1 ABOVE THAT THE COMPANY IS REQUESTING TO INCLUDE IN ITS RATE BASE IN THIS PROCEEDING.

1 A. EWAZ is requesting post-test year plant additions in its Agua Fria, Anthem,
2 Mohave, Sun City, and Sun City West wastewater districts. Capital projects for
3 the Northwest Valley WRF are segregated from the districts that it serves to
4 enable an allocation of its capital costs to both the Sun City West Wastewater and
5 Agua Fria Wastewater districts. A discussion of the projects by district and
6 project number follows.

7 **A Collection System (Gravity Sewer) Projects**

8 **Q. PLEASE DISCUSS THE COLLECTION SYSTEM PROJECTS IN THE**
9 **SUN CITY WASTEWATER DISTRICT.**

10 A. The following capital projects will be completed by June 30, 2017, and the
11 Company is requesting inclusion in the rate base for Sun City Wastewater:

12 **103rd Ave Sewer Main Replacement – Project #1001319**

13 The existing 8" sewer main in 103rd Avenue is approximately 45 years old
14 and is vitrified clay. In addition to frequent failures and maintenance
15 requirements, this segment of pipe was recently identified by a consultant's
16 condition assessment prioritization report as being "high priority" for
17 rehabilitation or replacement.

18 The project consists of replacing 4,955 feet of 8-inch vitrified clay pipe
19 (VCP) sewer with cured-in-place-pipe ("CIPP"). This is a trenchless technology,
20 in which a tube made of resin and fiber is pulled through the sewer pipe from
21 manhole to manhole, inflated, and cured onto the inner wall of the existing sewer
22 pipe using steam, heated water, or UV light. By using this method of installation,
23 pavement and concrete saw-cutting is essentially eliminated and new easements
24 are not required. Sewer laterals are reconnected to the new pipe using a tool that
25 is remotely controlled and cuts the new pipe. The new CIPP will have a design

1 life of at least 50 years, will not be susceptible to corrosion, and will prevent root
2 intrusion because the new pipe is continuous from manhole to manhole.

3 This project is expected to be complete and in service by May 2016.

4 **99th Ave Sewer Interceptor Rehabilitation – Project #1001268**

5 This project includes the in-place rehabilitation of approximately 2,300 feet
6 of 18-inch to 21-inch sanitary sewer and associated manholes in 99th Ave between
7 Thunderbird Blvd and Sun City Blvd. A condition assessment identified
8 structurally compromised pipe segments and corroded manholes that, if left
9 unrepaired, would eventually result in sewer main failure.

10 This project was completed and in service in March 2016.

11 **99th Ave Interceptor at New River - Project #1001331**

12 The 36-inch diameter reinforced concrete pipe (“RCP”) 99th Avenue
13 Interceptor between Peoria Avenue and Olive Avenue was one of the first Sun
14 City pipelines that collected wastewater for treatment at wastewater lagoons on the
15 west side of the intersection of New River and Olive Avenue. Over the years, the
16 lagoons were retired, and in 1982, a 30-inch diameter RCP siphon was constructed
17 across New River. The siphon was connected to an existing 36-inch diameter
18 RCP interceptor on the east side of New River near Olive Avenue. At the 99th
19 Avenue Interceptor and New River boundary, the original interceptor design had a
20 series of four manholes that ran through an apartment complex. These manholes
21 included an 83-foot long section, which enters the manhole and has a drop of 3.3
22 feet.

23 The 3.3-foot drop within Sun City Manhole #0497 (“SC-MH 0497”)
24 creates significant turbulence causing sewer gases, most notably hydrogen sulfide,
25 to be released from solution. This creates the potential for odors to be detected

1 within the apartment complex and fosters an environment for aggressive corrosion
2 of the interceptor and nearby manholes. Further exacerbating the situation is the
3 presence of the New River siphon just downstream. The siphon, by design, causes
4 the pipe to flow full under the river, eliminating the headspace within the
5 interceptor beyond the Sun City Metering Station. This causes the headspace
6 upstream of the siphon to pressurize, resulting in the release of headspace gases
7 through manholes and building vents within the apartment complex.

8 The purpose of this project is to mitigate the release of hydrogen sulfide
9 within the apartment complex. This will be accomplished by vertically realigning
10 the 36-inch interceptor from SC-MH 0497 to the metering station (approximately
11 170 linear feet) and the installation of an odor control system at the Sun City
12 Metering Station.

13 This project is expected to be complete and in service by December 2016.

14 **Sewer Main Rehabilitation Projects**

15 A condition assessment of sewer mains and associated sewer infrastructure
16 was conducted in 2015 and identified structurally compromised pipe segments and
17 corroded manholes that, if left unrepaired, will eventually result in sewer main
18 failure. A number of projects have been identified and included in the capital
19 budget plan to rehabilitate this infrastructure. These projects are identified in
20 Table 1. These projects represent those that we expect to complete by June 2017.

21 **Q. PLEASE DISCUSS THE COLLECTION SYSTEM PROJECTS IN THE**
22 **SUN CITY WEST WASTEWATER DISTRICT.**

23 **A.** The following capital projects will be completed by June 30, 2017, and the
24 Company is requesting inclusion in the rate base for Sun City West Wastewater:

Meeker Blvd. Sewer Main – Project #1001318

This segment of 8-inch and 10-inch sewer main in Meeker Boulevard is 36 years old and is made of VCP. Root intrusion, mainly at the joints, and age of pipe has been an ongoing problem causing clogging and leading to a collapse of the pipe two years ago.

The project consists of rehabilitating 1,260 feet of 8-inch VCP sewer and 140 feet of 10-inch VCP sewer with cured-in-place-pipe (“CIPP”). This is a trenchless technology in which a tube made of resin and fiber is pulled through the sewer pipe from manhole to manhole, inflated, and cured onto the inner wall of the existing sewer pipe using steam, heated water, or UV light. By using this method of installation, pavement and concrete saw-cutting is essentially eliminated and new easements are not required. Sewer laterals are reconnected to the new pipe using a tool that is remotely controlled and cuts the new pipe. The new CIPP will have a design life of at least 50 years, will not be susceptible to corrosion, and will prevent root intrusion because the new pipe is continuous from manhole to manhole.

This project was complete and in service as of January 2016.

B Lift Station & Force Main Projects

Q. PLEASE DISCUSS THE LIFT STATIONS AND FORCE MAIN PROJECTS IN THE SUN CITY WEST WASTEWATER DISTRICT.

A. The following capital projects will be completed by June 30, 2017, and the Company is requesting inclusion in the rate base for the Sun City West Wastewater District:

Bell Road Lift Station – Pumps No. 2 & No. 3 Replacement

The replacement of existing pumps no. 2 and 3 with a framed mounted 250-hp solids handling pumps and motors. The existing 135-hp pumps and motors were insufficiently sized and experienced system hydraulic issues. Scope of work included furnishing two new pumps and motors, and an electrical feed and disconnect panel to accommodate the higher horse power pumps and motors.

This project was complete and in service as of April 2016.

Bell Road Lift Station Flow Meter

The Bell Road Lift Station does not have a flow meter, which presents several challenges in monitoring operations and evaluating flow trends at the lift station. An estimated flow rate is calculated using the influent flow rate at the Northwest Valley WRF (“NWVWRF”) influent channel and subtracting the Corte Bella Lift Station flow rate, which is the only other source of flow feeding NWVWRF. Changes in the pump flow rate cause temporary hydraulic instability and/or surges in the force main which are conveyed through the Parshall flume at the NWVWRF influent structure. Therefore, the calculated flow rate is often not representative of the actual pump rate until force main hydraulics reach a steady state condition. In addition, influent flows to the lift station vary significantly between seasons. Installation of a flow meter at the Bell Road Lift Station will provide better flow rate accuracy and improve system hydraulics.

The work consists of the installation of a flow meter in the dry pit at Bell Road Lift Station, connecting the east side of the pump discharge manifold to upstream of the bypass manifold isolation valve located on the south side of the dry pit.

This project is expected to be complete and in service by June 2016.

Bell Road Lift Station Force Main – Project #1001320

The Bell Road Force Main is an 18-inch diameter asbestos cement pipeline (ACP) that runs for 3-½ miles from the Company's Bell Road Lift Station at the northwest corner of El Mirage Road and Bell Road to the NVRWRF. The force main crosses El Mirage Road and heads east across the Agua Fria River and past the Avenue of the Arts. The force main then runs north through the commercial property, through the Canyon Ridge residential development, across Union Hills Drivethrough the NVRWRF effluent recharge basins, and finally terminates at the outfall to the NVRWRF headworks.

Within the Agua Fria River bed, approximately 700 feet of the eastern half of the asbestos cement pipe was washed out in the 1980s. This section was replaced with ductile iron pipe (DIP). The segment from the lift station across El Mirage Road was replaced with 18-inch DIP in 2010 when the street intersection with Bell Road was improved. The rest of the force main is 35⁺ years old ACP.

The force main can only be shut down for a maximum of 2 to 5 hours at a time before it needs to be returned to service. When the force main is shut down, wastewater backs up in the upstream collection system and may cause overflow. Currently, the force main carries from 2 to 5 MGD at typical pressures of 24 to 70 psi at the lift station. A consultant recently completed an energy audit for the NWVWRF and determined that the pipe is partially obstructed because the lift station pumps are working harder than they should be for an 18-inch pipe. The report recommended an evaluation and cleaning of the existing force main and the need for a redundant force main.

1 This pipe has been of concern for years as a system vulnerability due to its
2 age, location within the river, the densely populated residential and commercial
3 areas it crosses, and the fact that it is the only means of conveying sewage from all
4 of Sun City West to the treatment plant. ACP is known to be susceptible to
5 hydrogen sulfide (H₂S) corrosion and this pipe has had an air release valve fail
6 due to hydrogen sulfide corrosion damage. The pipe is 37 years old and reaching
7 the end of its design life. There is only a single force main that cannot be isolated
8 for an extended period of time. Operations and maintenance crews have been
9 unable to either clean or evaluate the internal condition of the pipe. Corrosion
10 normally occurs at specific point locations rather than along the entire length of
11 pipe making it difficult to predict failure points.

12 This project consists of installing 3-1/2 miles of new 18-inch HDPE pipe
13 force main from just outside the Bell Road Lift Station to the NWVWRF. The
14 existing pipe will be left in place as a redundant line for emergency use and to
15 allow for regular maintenance of the new force main system.

16 This project is expected to be complete and in service by November 2016.

17 **Q. PLEASE DISCUSS THE LIFT STATIONS AND FORCE MAIN**
18 **PROJECTS IN THE SUN CITY WASTEWATER DISTRICT.**

19 **A.** The following capital projects will be completed by June 30, 2017, and the
20 Company is requesting inclusion in the rate base for the Sun City Wastewater
21 District:

22 **Paradise Resort Lift Station and Force Main Replacement – Project #1002387**

23 The Paradise Resort Lift Station and force main were originally constructed
24 in 1984 to serve the Paradise RV Resort in the Company's Sun City Wastewater
25 District. The existing lift station consists of two (2) self-priming suction lift

1 pumps, with all the discharge piping, valves and appurtenances, located in a 6 foot
2 x 5 foot above-ground fiberglass enclosure. The wet well is approximately 20 feet
3 deep and is located immediately adjacent to the pump enclosure. The existing
4 pump station has a firm capacity of 175 gpm at 44 feet of pressure head and the
5 pumps are configured in duty/standby mode. The site is equipped with a
6 freestanding pump control panel and auto-dialer for alarm annunciations to
7 SCADA.

8 The lift station discharges to a 4-inch ductile iron force main that runs
9 along the north side of Union Hills Drive for about 395 feet and extends south
10 across the street. The force main then runs southeast about 225 feet to West
11 Manzanita Drive where it outfalls to a gravity sewer main. The gravity system
12 discharges to the 99th Avenue Interceptor Sewer, which conveys flows to the City
13 of Tolleson WWTP.

14 The Paradise Resort force main became plugged in November 2015 and the
15 lift station failed to pump against the obstruction. Operators inserted a camera in
16 the force main from the gravity manhole and found the blockage. The blockage
17 was relieved by removing several feet of pipe that was plugged with debris. After
18 clearing the debris, the pipe was found to be tuberculated and had only 2 inches of
19 flow area remaining. Based on this and other sections of pipe that were viewed on
20 camera, the pipe has reached the end of its service life, is beyond repair and must
21 be replaced.

22 The lift station's existing facilities creates significant challenges to
23 operators when pump maintenance, troubleshooting, and equipment replacement
24 are necessary. The belt-driven pumps require frequent routine maintenance.

1 Pumps frequently lose prime. The tight configuration of the pumps in the 6-foot
2 wide by 5-foot high enclosure makes access very difficult.

3 An engineering consultant was contracted to investigate the viability and
4 cost effectiveness of replacing the lift station versus construction of a new gravity
5 sewer main that would outfall at the Coyote Lakes Lift Station. The evaluation of
6 alternatives found that the gravity sewer main option provides the most value in
7 terms of life cycle costs, risk and reliability, feasibility, constructability and
8 implementation schedule. The gravity sewer solution will consist of the
9 construction of 3,200 linear feet of new 8-inch PVC pipe, 1,000 linear feet of new
10 12-inch PVC pipe, and the utilization of existing sewer infrastructure in the
11 Canyon Ridge community. Hydraulic capacity of the existing sewer system was
12 modeled and found that a relief sewer line will need to be installed starting at a
13 manhole located at Avenue of the Arts and El Camino Oso Drive. From this
14 location, a parallel 8-inch sewer line will need to be installed to accommodate
15 influent wastewater flows from the Paradise Resort community. Factoring in
16 operation and maintenance and other life cycle costs over a 30-year period shows
17 that the gravity sewer option would save more than \$330,000 over its service life.

18 This project is expected to be complete and in service by November 2016.

19 **111th Ave Lift Station Force Main – Project #1001317**

20 The 111th Avenue & Olive Lift Station Force Main is a 6-inch, asbestos
21 cement pipe that was installed in 1968. Asbestos cement is very susceptible to
22 corrosion. This 48-year-old pipe is older than another nearby force main that
23 broke a few years ago in Peoria Avenue and had to be replaced under emergency
24 conditions. The Peoria Avenue pipe was completely corroded when it was
25 replaced. The 111th Avenue pipe has serious corrosion issues and could fail at

1 any time. The pipe should be replaced as soon as possible to avoid having to
2 replace it under emergency conditions.

3 The project consists of installing approximately 2,070 feet of new 6-inch
4 PVC pipe within the existing easement and connecting the new pipe into the
5 existing lift station wet well and the existing gravity discharge manhole.

6 This project was completed and in service as of February 2016.

7 **111th Ave Lift Station Replacement**

8 The existing 111th Avenue Lift Station was constructed in 1967 and has
9 been in service since that year. The lift station was constructed in a wet pit/dry pit
10 format, where the sewage to be pumped collects in a wet well and the pumps are
11 located in an adjacent dry vault structure that is equal in depth (approximately 8
12 feet) as the wet well. The pumps draw sewage from the wet well through pipe
13 connections between the wet and dry vaults and the sewage is discharged through
14 a force main.

15 The dry pit where the 111th Avenue Lift Station pumps are located is a
16 confined space, is located below grade where sewer gasses are present, and creates
17 accessibility issues because the surface access to the dry pit is a 30-inch diameter
18 shaft that opens to a larger underground vault.

19 The 111th Avenue Lift Station Replacement project includes design and
20 construction of a new lift station on the east side of 111th Avenue. The new lift
21 station will be designed utilizing submersible sewage pumps that can easily be
22 moved to the ground surface via cable attachments for maintenance. The lift
23 station will also include an above ground valve assembly, electrical cabinet,
24 SCADA cabinet, and emergency generator. The 20 foot by 30 foot pump station

1 parcel would be surrounded by an 8-foot block wall, with gated access on the
2 street side.

3 This project is expected to be complete and in service by February 2017.
4

5 **C Treatment Facility Projects**

6 **Q. PLEASE DISCUSS THE TREATMENT FACILITY PROJECTS IN THE**
7 **AGUA FRIA WASTEWATER DISTRICT.**

8 **A.** The following capital projects will be completed by June 30, 2017, and the
9 Company is requesting inclusion in the rate base for the Agua Fria Wastewater
10 District:

11 **Verrado Water Reclamation Facility Effluent Discharge – Project #1001205**

12 The Verrado Water Reclamation Facility (“Verrado WRF”) produces A+
13 effluent and DMB, the developer of Verrado, is currently the primary effluent end
14 user. DMB utilizes the bulk of the effluent for turf (golf course) and general
15 landscape irrigation. The secondary disposal option for effluent from the Verrado
16 WRF is groundwater recharge through a group of vadose zone recharge wells.
17 However, the vadose zone well recharge rates continue to decline and the recharge
18 rates continue to be unreliable. Should weather events result in a decrease demand
19 of effluent by DMB (e.g., a wet El Nino winter), the vadose wells are not likely to
20 meet all effluent disposal needs. A proposed backup effluent disposal option is to
21 discharge the Verrado WRF effluent into the Lost Creek Wash. Lost Creek Wash
22 runs through the Verrado development from west to east and feeds into Osborn
23 Wash. The existing 16-inch Verrado reclaimed water main that transports effluent
24 to the Verrado golf course, crosses under Lost Creek Wash at the Verrado Way
25 overcrossing, approximately 2 miles from the Verrado WRF. With pipe and

1 valves, the Verrado WRF effluent can be diverted, and an outfall structure built on
2 the bank of the wash.

3 This project will consist of design and construction of the improvements at
4 the Lost Creek Wash in Verrado. It will involve piping, automated valves and an
5 outfall structure. The design and construction effort will also include
6 improvements to the Verrado WRF dechlorination equipment so that it can operate
7 automatically and flow paced. Professional services, permit fees, and internal
8 labor spent obtaining the AZPDES permit and modifications to the Aquifer
9 Protection Permit are included with this project.

10 This project is expected to be complete and in service by October 2016.

11 **Verrado WRF Operations Building**

12 When the Verrado WRF was originally constructed in 2004, an existing
13 trailer, approximately 24 foot by 60 foot was moved from the Anthem Water
14 Campus to the new Verrado facility as an interim plant operations and
15 administration office. This office trailer has reached it useful life and rather than
16 continuing to repair or replace in kind, design and construction of a 2,000 square
17 foot Operations Building is planned for the long term needs of this facility.

18 This project is expected to be complete and in service by June 2017.

19 **Q. PLEASE DISCUSS THE TREATMENT FACILITY PROJECTS AT THE**
20 **NWVWRF.**

21 **A.** The following capital projects will be completed by June 30, 2017, and the
22 Company is requesting inclusion in the rate base for the Agua Fria Wastewater
23 and Sun City West Wastewater Districts:

1 **NWVWRF SES and ATS Replacement**

2 The existing 3,000 amp service entrance section (SES) was installed at the
3 NWVWRF in 1991. The SES was installed with an integral, automatic transfer
4 switch (ATS) and a 750 kW standby generator "Generator #1). Historically, in the
5 event that the NWVWRF experienced a grid power outage, the ATS would
6 redirect the plant's power feed to Generator #1. In subsequent years, a second 750
7 kW standby generator (Generator #2) with an ATS was installed directly into the
8 MCC-6 circuit breaker, which feeds power to the air blower systems. Generator
9 #2 was added due to the criticality of air supply to the treatment process, and on
10 the assumption that Generator #1 could not provide the required power supply for
11 the entire plant. Unfortunately, the addition of Generator #2 caused modifications
12 that require the manual manipulation of the MCC-6 feeder breaker and the manual
13 transfer of power from Generator #1.

14 There are a number of issues with the current SES and standby power
15 configuration, summarized as follows: 1) the current SES and ATS will be
16 upgraded to meet current electrical code standards. 2) There is no way to service
17 the ATS without engaging APS to de-energize the serving transformer. 3) Any
18 manual manipulation required to transfer power supply to standby power is not
19 appropriate for a major treatment facility. Based on a historical review of power
20 usage data from APS, it is believed that Generator #1 can now carry the entire
21 plant load. New electrical gear should be configured to allow for seamless power
22 transfer to Generator #1, and Generator #2 configured to supply additional power
23 only if Generator #1 power is inadequate.

24 Electrical equipment at a wastewater treatment plant has a shortened life
25 span because of exposure to fugitive hydrogen sulfide gas.

1 This project is scheduled to be complete and in service by October 2016.

2 **NWV WRF Digester Diffuser and Blower Replacement – Project #1001324**

3 In 2014, a process and energy efficiency evaluation was commissioned at
4 the NWVWRF to study actual energy usage and efficiency throughout the
5 facility's processes. Aeration systems used in the bioreactors, digesters and
6 auxiliary processes typically account for the highest energy consumption in a
7 water reclamation facility. Study results found that wire-to-air efficiencies for the
8 three relatively aged blowers were in the 40 to 50 percent range, while industry
9 standard for new blowers is approximately 72 percent. In 2013, three 150-hp
10 blowers that were used to supply air to the bioreactors were replaced with two
11 125-hp, higher efficiency blowers operating on variable frequency drives (VFD).
12 NWVWRF operates two digester tanks that provide equalization capacity
13 upstream of the belt filter presses, which provides Operations flexibility for
14 scheduling operation of the belt filter presses. Air diffusers in the sludge holding
15 tanks transfer air throughout the basins to facilitate steady-state flow of the sludge,
16 which helps maintain a consistent solids concentration of 1.5 percent when
17 running optimally. The existing diffusers are approximately 12 years old. Based
18 on recent properties of the stabilized sludge entering the belt filter presses,
19 consistent air transfer throughout the sludge holding basins is not occurring due to
20 degradation of the diffuser media. Air diffuser systems in both sludge holding
21 tanks require replacement. Upgrading the filter media to provide higher
22 performance will restore stability to the thickened sludge being transferred to the
23 belt filter presses.

24 This project consists of replacing three existing multistage centrifugal
25 blowers, which have capacities of 75 hp, 125 hp and 150 hp, with two rotary lobe

1 style compressors with VFDs. Capacities of the new blowers will be 100 hp and
2 125 hp. Overall air flow capacity will increase due to the significantly higher
3 efficiency of the new blowers. An additional pressure indicating transmitter will
4 be installed in the new blower configuration as a feedback instrument to control
5 blower speed. New air diffuser systems will be installed in both sludge holding
6 tanks to replace the damaged diffuser media, header piping and supply manifolds.
7 All replacement construction will not interrupt treatment service.

8 This project was completed and in service as of April 2016.

9 **NWVWRF Primary Effluent Splitter Box Modifications – Project #1001329**

10 In 2014, a process and energy efficiency evaluation was commissioned at
11 the NWVWRF to evaluate opportunities to improve energy efficiency and process
12 capabilities. The study compared the actual influent characteristics to the design
13 characteristics that were used as a basis for the last plant expansion that occurred
14 in 2002, and found that present influent biochemical oxygen demand (BOD) is
15 approximately 41 percent higher than that used for design in 2002. The 2014
16 study stated that mass loadings to the facility represent a higher fraction than was
17 included in the design for the last expansion, and all four bioreactors must be
18 equally utilized in order to treat the design flow of 5.0 MGD. The flow splitting
19 structure that divides flow among the four bioreactors currently has hydraulic
20 limitations that restrict the operation of Bioreactors 1 and 2 while Bioreactors 3
21 and 4 are in operation.

22 The last expansion project in 2002 brought additional facilities to the
23 NWVWRF including Bioreactor 4 and the Primary Effluent Splitter Box, which
24 was intended to split the primary effluent flow between the bioreactors. The flow
25 split that occurs is critical because the bioreactors have different volumes and

1 capacities. The 2014 process and energy efficiency evaluation recommended that
2 a study be initiated to evaluate modifications that could be performed to the
3 existing splitter box to allow for better control of flow distribution between the
4 four bioreactors.

5 This project will consist of a design study to evaluate options to improve
6 the hydraulic distribution of primary effluent to all four bioreactors. Options will
7 include 1) adjusting weir elevations and/or installing weir gates within the existing
8 junction structure, 2) expanding the existing structure and modifying the weir
9 elevations, 3) constructing a new junction structure with weir gates, or 4)
10 constructing a new junction structure with modulating valves and flow
11 measurement.

12 The decrease in flow to wastewater systems due to water conservation
13 measures has led to a corresponding increase in the concentration of the BOD and
14 total suspended solids (TSS) of the wastewater at all plants in the Valley.

15 This project is scheduled to be complete and in service by May 2016.

16 **NWVWRF Odor Scrubber Replacements – Project #1001355**

17 This project will replace two aged chemical odor scrubbers at the NWVWRF.
18 Odor Scrubber #1 services the plant's equalization basin, and Odor Scrubber #4
19 services the headworks. Scrubber #1 is approximately 30 years old, has been fully
20 depreciated, and is undersized for its current workload. Scrubber #4 is 18 years
21 old and is undersized for its current workload and is showing visual signs of
22 exterior decay. Scrubber #4 has already undergone extensive repairs and
23 modification in order to maintain compliance with air quality regulations.
24 Operations staff is also concerned by the evidence of physical deterioration on the

1 outside of the scrubber and have repeatedly patched the unit. Scrubber #4 is
2 essentially at the edge of operational compliance with regulatory requirements.

3 The project will be broken into three phases: 1) fabrication of two new
4 chemical odor scrubbers, 2) diversion of air flow to another scrubber during
5 change-out, and 3) installation of the new scrubbers, connection and start-up.

6 This project is scheduled to be complete and in service by June 2016.

7 **Q. PLEASE DISCUSS THE TREATMENT FACILITY PROJECTS IN THE**
8 **ANTHEM WASTEWATER DISTRICT.**

9 **A.** The following capital projects will be completed by June 30, 2017, and the
10 Company is requesting inclusion in the rate base for the Anthem Wastewater
11 District:

12 **Anthem WRF Effluent Recharge**

13 Treated effluent from the Anthem Water Reclamation Facility ("Anthem
14 WRF") storage pond is pumped and delivered to reclaimed users, a surface
15 recharge facility, or Deadman Wash. The primary driver behind this project is to
16 minimize discharge to Deadman Wash, because EWAZ effectively loses recharge
17 credits by discharging the water. Currently, effluent is discharged to Deadman
18 Wash, when reclaimed users are not using supplies and the effluent storage pond is
19 full. Alternatives analysis and effluent distribution system water balance is
20 underway to verify the operational impact, risk, and ROI for effluent disposal
21 options. The study will be followed by implementation of one or more options
22 that may include revisions to operational strategy, increased on-site storage, and
23 installation of a vadose zone well.

24 This project is scheduled to be complete and in service by June 2017.

Anthem WRF Splitter Box Rehabilitation – Project #1002543

Anthem WRF is part of the Anthem Water Campus and treats wastewater to an A+ reuse standard. This project is particularly focused on solving a corrosion problem at the grit effluent splitter box. The preliminary treatment facilities, which consist of 6mm screens and Pista Grit cyclone degritters, are connected through a series of concrete channels and hydraulic chambers. Many parts of these conveyance structures are covered with concrete tops. The amount of hydrogen sulfide that is present has had a deleterious effect on the concrete even though the ventilation rates meet the requirements of NFPA 820 of 12 air changes per hour.

One of the chambers, the grit effluent splitter box, has corrosion that has removed up to 2-inches of surface concrete. This particular splitter box is in need of structural rehabilitation and installation of a coating system.

The configuration of the preliminary treatment facilities with the equalization basins does not allow for the isolation of the grit effluent splitter box. Even with the planned addition of a second grit removal train, the splitter box does not allow for isolation. This means that the only way to isolate the existing splitter box is through bypass piping. The project scope also includes the construction of a hydraulic structure that can be isolated in the future and integrated into the future construction of the second grit treatment train. The need for this project is an example of the extreme corrosion that occurs in the Phoenix area with high strength and high temperature wastewater.

This project is scheduled to be complete and in service by August 2016.

1 **Anthem WRF Bioreactor Diffuser Replacement (Phase 1 & 2) – Project**
2 **#1002082**

3 This project will evaluate process, safety, constructability, and structural
4 issues to identify optimal locations, sizes and removal mechanisms for additional
5 access points. It will also evaluate design and construction of access points, and
6 installation of permanent interconnect to reduce operational risk. Complete
7 diffuser system replacement is scheduled to occur in 2017.

8 This project is scheduled to be complete and in service by December 2016.

9 **Anthem WRF Recharge Basin Conduit – Project #1002553**

10 Prior to construction of the Opportunity Way Park project that is being
11 constructed by a developer over the Company's existing recharge facility,
12 installation of conduit is needed for future automation.

13 This project was completed and in service as of March 2016.

14 **Anthem WRF Permeate Piping Improvements – Project #1002664**

15 Design and construction of improvements in Anthem WRF filter basin area
16 including: (1) horizontal bridge crane extension, (2) concrete pad & sitework, (3)
17 camlock fitting modifications, (4) flooring plate modifications, and (5) permeate
18 piping modifications.

19 The need for these improvements is as follows:

20 (1) Horizontal bridge crane extension and (2) concrete pad & sitework: Extension
21 of the bridge crane and construction of a maintenance pad will allow operators to
22 have full forklift access to the membrane cassettes as they lift and transport them
23 for routine cleaning and repairs. This will eliminate the need for operators to
24 climb ladders to reach across existing piping and moving parts to disconnect
25 membranes. Improvements will extend a stable working surface and reduce risks

1 of strains or falls. (3) Camlock fitting modifications: The Camlock fittings are
2 located below grade in a difficult, confined space environment. Operators need to
3 lift flooring plates and access these fittings to release each membrane cassette for
4 routine maintenance or membrane change-out. Due to their location, they become
5 corroded quickly and difficult to operate. Newer water reclamation facilities have
6 identified this issue and now locate the camlock fittings above grade. Moving the
7 connection points to above the floor plates will reduce the amount of time that the
8 Operators are exposed to fall hazards, and permitted confined space requirements.
9 Moving the connection points will also reduce the corrosive environment, making
10 the parts easier to operate, reducing the risk of strains. (4) Flooring plate
11 modifications: The flooring plates installed at Plant 1 (includes filter basins
12 1&2) are large and heavy. Moving the plates requires the use of the bridge crane
13 to handle them. Due to their size and weight, it is slow and awkward to move and
14 position the plates out of the way during routine maintenance tasks. The flooring
15 plates at Plant 2 (filter basins 3&4) were installed at a later build-out phase and
16 they are smaller and lighter. Upgrade of the older Plant 1 flooring plates to bring
17 them up to the Plant 2 standard will reduce the risks of strains or getting hit by the
18 plates. (5) Permeate piping modifications: These will address additional
19 clearance needed when using the bridge crane to lift the Anthem WRF membrane
20 cassettes over the existing permeate piping for maintenance. There is currently
21 less than 2 inches of clearance between the membranes and the permeate piping
22 below. This project as proposed will modify one key area of piping to create a
23 "lane" of travel to transport membranes safely over piping. Newer membranes
24 will be 4 inches taller than the existing membranes so conditions are expected to
25 worsen. If clearance for membranes is not addressed, membrane may become

1 damaged during maintenance or additional staff time to dismantle membrane
2 cassettes and reassemble the cassettes may be required.

3 This project is scheduled to be complete and in service by December 2016.
4

5 **Q. PLEASE DISCUSS THE TREATMENT FACILITY PROJECTS IN THE**
6 **MOHAVE WASTEWATER DISTRICT.**

7 **A.** The following capital projects will be completed by June 30, 2017, and the
8 Company is requesting inclusion in the rate base for the Mohave Wastewater
9 District:

10 **Mohave Wishing Well WWTP Concrete Repair – Project #1002085**

11 The Wishing Well Wastewater Treatment Plant (“Wishing Well WTP”)
12 was built back in the early to mid-1990s, and was a Mar-Wood package plant.
13 This included concrete decking in and around the aeration basins. In 2008,
14 improvements were made to the treatment plant as a whole (eg. new clarifier, new
15 screw press, new headworks, and aeration basin reconfiguration). Over the years
16 corrosion has occurred and caused some of the decking to break away.

17 In 2013, a structural engineer was hired to perform an investigation of the
18 concrete decking, and various improvements were recommended. Based on those
19 recommendations, design drawings were prepared and bids obtained for
20 construction. One of the bidders who specializes in concrete tank construction and
21 repair recommended more complete improvements be performed upon further
22 investigation based on their experience with concrete tank construction and repair.

23 This project consists of replacing the concrete decking in the affected areas.
24 Work will include demolition and removal of T-beams, shoring and form work,

1 drill and epoxy, installation of rebar, place and finish of concrete, remove and
2 replace handrails, and removal and replacement of existing air piping.

3 This project is scheduled to be complete and in service by August 2016.

4 **Q. PLEASE DISCUSS ANY EPCOR WATER USA (6U) PROJECTS.**

5 **A.** The following capital projects will be completed by June 30, 2017 and the
6 Company is requesting inclusion in the rate base for EPCOR Water USA:

7 **Enterprise Asset Management System (EAMS) – Project #1001344**

8 EPCOR has identified an opportunity to be more efficient in the way it
9 manages its distribution and collection system assets, as it currently utilizes a
10 combination of paper records, spreadsheets, and maps for asset management. The
11 current state does not allow EPCOR to leverage the benefits of financial
12 information in Oracle or customer service requests in eCIS+. The goal of this
13 project is to implement an Enterprise Asset Management (EAM) solution. The
14 EAM solution consists of Cityworks, a computerized maintenance management
15 system (CMMS) that integrates with GIS, Oracle E-Business, and eCIS+. The
16 result would be improved measurement of performance indicators; improved
17 maintenance program management; improved asset utilization; increased staff
18 utilization; and more efficient reporting and rate case testimony development.

19 The scope of the project is for a cross-functional team to develop and
20 implement Cityworks, a standardized, GIS based work management system, and
21 integrate it with Oracle E-Business Suite and eCIS+ across EPCOR US.
22 Distribution and collection system mains and appurtenances are in scope; onsite
23 facilities and customer meters are not included in scope. The implementation
24 consists of the configuration of Cityworks, integration with other enterprise

1 systems, and the engagement, training, and acceptance of the new system by
2 EPCOR staff. The consultant, Woolpert, will facilitate workshops, develop
3 Cityworks configurations, custom reports, and the integration designs for Oracle
4 and eCIS+. EPCOR IT will be engaged in the design and installation of hardware;
5 review of software requirements; software deployment; set up and administration
6 of system and integration testing; and go-live support.

7 Vertex will be engaged in the development of an interface to integrate
8 distribution and collection system service requests. The core of the cross-
9 functional team will consist of operations staff who will be engaged in the
10 standardization of workflows, utilization and feedback of the application.
11 Participation from other teams, such as Finance, Corporate Services, Supply
12 Chain, and Engineering will be required on as-needed basis.

13 This project is scheduled to be complete and in service by June 2017.

14 **GIS Data Model Improvements**

15 To support the new Enterprise Asset Management System, there is a need
16 to migrate editing geodatabases for each of EPCOR's wastewater districts to a
17 consolidated data model. In addition to a consolidated editing environment, a
18 publication database that is in a single projection needs to be configured. The
19 consolidation in the editing environment will lead to a more efficient work flow
20 and the single publication database is required for enterprise asset management.

21 This project is scheduled to be complete and in service by May 2016.
22

1 **Century Link – Fiber Optics**

2 The CenturyLink fiber optic project is necessary to increase speed between
3 facilities to improve efficiency and productivity throughout the business.

4 This project is scheduled to be complete and in service by May 2016.

5 **Q. PLEASE DISCUSS ANY EPCOR WATER ARIZONA (7A) PROJECTS.**

6 **A.** The following capital projects will be completed by June 30, 2017 and the
7 Company is requesting inclusion in the rate base for EPCOR Water Arizona:

8 **Corporate Capital Projects**

9 Corporate capital projects include replacement of computer laptops utilized
10 in the field “Tough Books”; needed Central Operations Building improvements;
11 and rehabilitation and replacement of large operations vehicles including a Vactor
12 truck necessary for cleaning and maintenance of wastewater infrastructure.

13 These projects are scheduled to be complete and in service by June 2017.

14 **Q. WHY ARE THESE POST TEST YEAR PROJECTS NECESSARY?**

15 **A.** The majority of these projects are necessary due to aging infrastructure with assets
16 reaching or exceeding their useful life. In Sun City, one of the Company’s oldest
17 districts, the infrastructure is up to 50 or 60 years old. A large portion of the
18 wastewater infrastructure in this area was installed in the late 1950s and early
19 1960s. According to the EPA, replacing the nation’s aging wastewater
20 infrastructure has a price tag of \$271 billion. The ASCE published a national
21 Infrastructure Report Card in 2013, in which wastewater infrastructure throughout
22 the United States received an overall grade of “D”, with an estimated capital
23 investment need of \$298 billion over the next twenty years. Pipes represent the

1 largest capital need, comprising three quarters of the total investment needed.
2 Fixing and expanding the pipes will address sanitary sewer overflows, combined
3 sewer overflows, and other pipe-related issues. In recent years, capital needs for
4 the wastewater treatment plants comprise about 15%-20% of total needs, but will
5 likely increase due to new regulatory requirements.

6 In 2015, the Arizona Section of ASCE published a report card specific to
7 Arizona infrastructure. In that report, Arizona's wastewater infrastructure earned
8 a grade of "C", which is better than the national average likely due to the age of
9 Arizona's infrastructure compared to much older infrastructure in the eastern part
10 of the United States, but still a concern. In that report, several things were noted
11 which are not only representative of Arizona's wastewater infrastructure, but also
12 in line with that which is being experienced by the Company. In part, the report
13 states:

14 *Wastewater systems, made up of pipe systems and treatment facilities,*
15 *provide a safe and cost-effective way to dispose of and clean used water*
16 *from homes and industry. They protect the environment and water quality*
17 *as well as recapture and reuse reclaimed water, which is critical to the*
18 *state's water supply. Arizona's innovative reuse of treated, reclaimed water*
19 *has resulted in reuse of as much as 85% of the state's wastewater. Arizona*
20 *has 120 wastewater treatment plants of varying sizes with several dozen*
21 *more planned as flows continue to increase with the state's growth. Some*
22 *smaller communities do not have collection and treatment systems or use*
23 *outdated methods like lagoons, and 20% of the state's wastewater*
24 *treatment plants, mostly smaller rural communities, were receiving flows at*
25 *or beyond their permitted capacity. Many portions of Arizona's wastewater*

1 systems are 50 years old or more, and the warm climate shortens their
2 useful life and causes corrosive hydrogen sulfide to corrode and break
3 pipes. Due to the recession, many of Arizona's wastewater plants suffer
4 from deferred maintenance issues that now require attention. Wastewater
5 flows statewide are projected to more than double to nearly 850 million
6 gallons per day within the next 20 years, and the identified need for
7 wastewater treatment and collection improvements is \$4.4 billion. Another
8 future challenge facing Arizona's wastewater facilities is the need to deal
9 with increasing salinity caused by widespread use of salt-based home and
10 industrial water softening systems, which significantly compounds the
11 problem.

12 ... pipelines in Arizona's wastewater collection systems are deteriorating
13 due to age and also due to corrosive attack by hydrogen sulfide which is a
14 harsh problem in Arizona due to the warm climate. In the past decade there
15 have been a number of sewer collapses or breaks due to structural failure
16 of the pipes themselves, which in some cases can be completely eaten away
17 by corrosion. Many of the largest sewers in the metropolitan Phoenix and
18 Tucson areas were constructed in the 1950s, 60s and 70s. Although these
19 lines might otherwise have been expected to last as long as 100 years, due
20 to the challenging conditions in our climate these pipes cannot be expected
21 to last more than 50 years. A major failure of one of these pipelines could
22 disrupt wastewater service to tens of thousands of people.²

² Excerpts from wastewater section of ASCE 2013 Report Card for America's Infrastructure.

1 Q. ARE THESE POST-TEST YEAR PLANT ADDITIONS BEING
2 COMPLETED TO SERVICE EXISTING CUSTOMERS?

3 A. Yes.

4 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

5 A. Yes.

6

Stuck Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
TOM FORESE
BOB BURNS
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF
EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT FAIR
VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR CHANGES IN ITS
RATES AND CHARGES BASED THEREON
FOR UTILITY SERVICE BY ITS AGUA FRIA
WASTEWATER, ANTHEM WASTEWATER,
SUN CITY WASTEWATER, SUN CITY WEST
WASTEWATER, AND MOHAVE
WASTEWATER DISTRICTS AND FOR
CONSIDERATION OF CONSOLIDATION AND
DE-CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
JEFFREY W. STUCK
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

**DIRECT TESTIMONY
OF
JEFFREY W. STUCK
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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1 **EXECUTIVE SUMMARY**

2 Jeffrey W. Stuck describes the wastewater service areas and facilities for two of the
3 five districts that are included in this application: Anthem Wastewater and Mohave
4 Wastewater. Mr. Stuck describes the facilities in each district and the communities that
5 comprise each of the districts. Mr. Stuck also describes the current agreement with the
6 City of Phoenix in the Anthem Wastewater District.

Page 1 of 6

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE**
3 **NUMBER.**

4 A. My name is Jeffrey W. Stuck. My business address is 6215 N. Cattletrack Road,
5 Scottsdale, Arizona, and my business phone is 623-445-3125.

6 **Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?**

7 A. I am employed by EPCOR Water USA ("EWUS") as Director of Operations for
8 the Eastern Division.

9 **Q. PLEASE DESCRIBE YOUR PRIMARY RESPONSIBILITIES FOR THE**
10 **COMPANY.**

11 A. My primary responsibilities are for water treatment and distribution, wastewater
12 collection and treatment, and ensuring safe and reliable service for EPCOR Water
13 Arizona Inc. ("EWAZ" or "Company"), which includes the following districts:
14 Mohave Water, Mohave Wastewater, Havasu Water, Paradise Valley Water,
15 Anthem Water, and Anthem Wastewater. I also oversee the operations of
16 Chaparral City Water Company and North Mohave Valley Water Company. On
17 March 10, 2016, the Arizona Corporation Commission ("ACC") approved the
18 purchase of the Willow Valley Water Company by EWAZ and upon completion
19 of the transfer, I will oversee the operations of that district as well.

20 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND**
21 **EDUCATION.**

22 A. I hold a Bachelor of Science Degree from Arizona State University. I have
23 worked in the water industry for over 24 years. I began my career working at the
24 Arizona Department of Water Resources where my duties included water rights
25 investigations associated with the Little Colorado River Adjudication. In 1992,

Page 2 of 6

1 I began working for the Arizona Department of Environmental Quality in the Safe
2 Drinking Water Program. Over the next 13 years, I held many positions in the
3 ADEQ Safe Drinking Water Program with the last being the Safe Drinking Water
4 Program Manager. In 2005, I joined EWUS, then Arizona American Water, as the
5 Western Region Environmental Director. Since 2007, I have been employed as
6 the Eastern Division Operations Director with responsibilities including
7 overseeing water and wastewater operations in the communities of Paradise
8 Valley, Anthem, Bullhead City, and Lake Havasu. In 2012, my responsibilities
9 were expanded to include Chaparral City Water Company, which provides service
10 in and around Fountain Hills, AZ and again expanded in 2014 to include the North
11 Mohave Water System. Upon completion of the purchase of the Willow Valley
12 Water Company system, my responsibilities will be expanded to include that
13 district in the Mohave County area as well.

14 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

15 A. Yes.

16
17 **II. PURPOSE OF TESTIMONY**

18 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

19 A. The purpose of my testimony in this proceeding is to describe the service areas
20 and facilities for two of the districts that are included in this case: Anthem
21 Wastewater and Mohave Wastewater.

22 **III. MOHAVE WASTEWATER DISTRICT**

23 **Q. PLEASE DESCRIBE THE MOHAVE WASTEWATER DISTRICT.**

24 A. The Mohave Wastewater System is comprised of two distinct service areas
25 located in the Mohave Valley and at the Arizona Gateway development. The
26 Mohave Valley portion of the system is located in the community of Fort Mohave.

Page 3 of 6

1 The Fort Mohave service area is approximately 3.5 square miles and there are
2 approximately 1,700 customers in this portion of the Mohave Wastewater service
3 territory. The Fort Mohave area is served by our Wishing Well Water
4 Reclamation Facility ("Wishing Well"), a 400,000 gallon per day ("gpd")
5 extended aeration wastewater treatment plant located south of Bullhead City. The
6 treatment process consists of headworks, which include a grit basin and fine
7 screen, Parshall flume meter, aeration and anoxic basin with nitrification and
8 denitrification capability, secondary clarifiers, multi-media filters, chlorine contact
9 basin, clear well with pump station, sludge holding tank and sludge dewatering
10 unit. The effluent from this wastewater treatment plant is delivered and sold
11 offsite to the Buena Vista Homeowners' Association for beneficial reuse in man-
12 made lakes at the Lakes at Los Lagos subdivision.

13 The Arizona Gateway Treatment Plant ("Gateway Plant") is located at the
14 intersection of Highway 95 and Interstate 40 and is approximately 12 miles north
15 of Lake Havasu City. This service area is approximately 0.25 square-miles and
16 there are 3 commercial customers in this portion of the Mohave Wastewater
17 service territory. The Gateway Plant is an underground 112,000 gpd extended
18 aeration plant that serves a collection system for a commercial development block
19 that includes a truck stop, fast-food chains, a gas station, storage buildings, and
20 other structures. Influent enters into a flow-equalization basin, and is treated in
21 two separate train aeration reactors with a sludge holding tank. The effluent is
22 then disinfected using chlorination/de-chlorination and disposed into an
23 evaporation pond located within the compound of the treatment plant site. The
24 investment for the Gateway Plant was originally advanced by the developer.

25

1 **IV. ANTHEM WASTEWATER DISTRICT**

2 **Q. PLEASE DESCRIBE THE COMPANY'S WASTEWATER SERVICE IN**
3 **ANTHEM.**

4 A. In the Anthem community, the Company provides wastewater collection and
5 treatment service for approximately 9,000 customers. The Anthem system is an
6 integrated water/wastewater system with both water and wastewater treatment at a
7 combined water campus located in the Anthem community.

8 **Q. PLEASE DESCRIBE THE ANTHEM WASTEWATER TREATMENT**
9 **PLANT AND COLLECTION SYSTEM.**

10 A. The Anthem Wastewater Treatment Plant ("Anthem WWTP") is an activated
11 sludge, tertiary-treatment plant (membrane bioreactor) with ultraviolet disinfection
12 and a chlorine contact chamber that treats the wastewater from the Anthem
13 community. The Anthem Wastewater District covers approximately 8 square
14 miles in land area and includes a wastewater collection system with 7 lift stations.
15 There are approximately 100 miles of sewer mains, two miles of force mains,
16 1992 manholes and 224 cleanouts within the district. The Anthem WWTP
17 removes organic and suspended material from the waste stream to meet ADEQ
18 requirements for unrestricted use.

19 **Q PLEASE DESCRIBE THE ANTHEM RECLAIMED WATER SYSTEM.**

20 A. The Anthem Reclaimed Water System delivers recycled water that meets A+
21 effluent quality standards and is disinfected before being used for irrigation in the
22 local community or is recharged into the groundwater aquifer. The Anthem
23 Reclaimed Water System consists of a one million gallon retention pond located at
24 the Anthem Water Campus, a series of four high service pumps, a reclaimed water
25 distribution system, a groundwater recharge facility and an AZPDES discharge

Page 5 of 6

1 point to an adjacent wash. All reclaimed uses are permitted by the requisite
2 Arizona regulatory authorities.

3 **Q. PLEASE DESCRIBE THE CONNECTION WITH THE CITY OF**
4 **PHOENIX.**

5 A. The area of Anthem on the west side of Interstate 17 ("I-17") is located within the
6 city boundaries of the City of Phoenix ("City"). Water and wastewater services to
7 that area are provided by the City. The City's wastewater collection system
8 collects all of the wastewater flows west of I-17 and delivers those flows to the
9 EPCOR wastewater collection system at an alignment with Opportunity Way and
10 I-17. These flows are measured with a Parshall flume that is located at the
11 connection point between the two wastewater collection systems. The average
12 monthly flows received from the City of Phoenix are approximately 17,267,000
13 gallons with monthly maximum flows of approximately 19,480,000 gallons. The
14 City of Phoenix's wastewater from its collection system in this area flows through
15 the EPCOR collection system to the wastewater plant at the Water Campus where
16 it is treated.

17 **Q. HAVE THE COMPANY AND THE CITY OF PHOENIX AMENDED**
18 **THEIR ORIGINAL WHOLESALE WATER/WASTEWATER**
19 **TREATMENT AGREEMENT?**

20 A. Yes. On September 30, 2015, the City of Phoenix and EPCOR entered into a
21 Supplement Two to the Anthem Wholesale Water /Wastewater Service Agreement
22 between the City of Phoenix and EPCOR Water Arizona Inc. ("Supplement
23 Two"). The portion of Supplement Two that relates to the wholesale wastewater
24 service requires the Company, in its next rate filing, to request a change in the
25 basis of billing that would convert the present billing from a water usage basis to a

Page 6 of 6

1 measured flow of their wastewater flume at the delivery point. The cost of service
2 study performed by Ms. Connie Heppenstall for this proceeding incorporates this
3 change in billing basis from a water-usage basis to a cost per thousand gallon of
4 wastewater flume.

5 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

6 **A. Yes.**

Metzler Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
TOM FORESE
BOB BURNS
ANDY TOBIN

IN THE MATTER OF THE APPLICATION
OF EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT
FAIR VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR
INCREASES/DECREASES IN ITS RATES
AND CHARGES BASED THEREON FOR
UTILITY SERVICE BY ITS AGUA FRIA,
ANTHEM, MOHAVE, SUN CITY, AND SUN
CITY WEST WASTEWATER DISTRICTS
AND FOR CONSIDERATION OF
CONSOLIDATION AND DE-
CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
FRANK METZLER
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

**DIRECT TESTIMONY
OF
FRANK METZLER
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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1 **EXECUTIVE SUMMARY**

2 Frank Metzler describes the wastewater service areas and facilities for three of the
3 five districts that are included in this Application: Agua Fria Wastewater, Sun City
4 Wastewater, and Sun City West Wastewater. Mr. Metzler describes the facilities in each
5 district, including recent projects, and the communities that comprise each of the districts.
6 Mr. Metzler also describes the Tolleson Agreement, which governs use of the Tolleson
7 Wastewater Treatment Plant for the Sun City Wastewater District.

8
9
10

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE NUMBER.

A. My name is Frank Metzler. My business address is 15626 N. Del Webb Blvd., Sun City, Arizona 85351, and my business phone is (623) 445-2439.

Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?

A. I am employed by EPCOR Water USA ("EWUS") as the Director of Operations for the Central Division. My division includes the Sun City Wastewater District, Sun City West Wastewater District, and Agua Fria Wastewater District, which are included in the Company's rate filing.

Q. PLEASE DESCRIBE YOUR PRIMARY RESPONSIBILITIES FOR THE COMPANY.

A. My primary responsibilities are for water treatment and distribution, and wastewater collection and treatment, and ensuring safe and reliable service for customers of EPCOR Water Arizona Inc., which includes the following districts: Agua Fria Water and Wastewater, Sun City Water and Wastewater, and Sun City West Water and Wastewater. I am also responsible for developing and administering infrastructure improvement plans for water facilities and wastewater facilities, consistent with the Company's operational and financial goals, and maintaining compliance with regulatory requirements. I also manage the Central Division's annual capital improvements and operating budgets

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATION.

1 A. I have been employed by EWUS since August 2013. I have over 23 years of
2 professional experience in water resources management, environmental planning,
3 and project management in both the public and private sector. Earlier in my
4 career, I worked nine years for the University of Arizona, the Arizona Department
5 of Water Resources, and Arizona Department of Environmental Quality on
6 various statewide water supply planning and water quality programs. Prior to
7 joining EWAZ, I worked for the Florida Department of Environmental Protection
8 for two years and for Parsons Engineering for eight years. In those roles, I
9 provided comprehensive program management services for the US Army Corps of
10 Engineers and the South Florida Water Management District for large scale civil
11 works projects, such as above ground reservoirs and constructed wetlands for
12 water quality treatment. I also provided consulting services to the US Air Force,
13 performing facility condition assessments at several air bases in Japan, the
14 Republic of Korea, and the United Kingdom.

15 I have a Master of Arts in Geography with an emphasis in environmental planning
16 from New Mexico State University, and a Bachelor of Arts in Geography from
17 California State University Fresno. I am a certified Project Management
18 Professional with the Project Management Institute.

19 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

20 A. Yes, I have. I recently testified in EPCOR Water Arizona Inc.'s ("EWAZ" or
21 "Company") application for a new wastewater certificate of convenience and
22 necessity ("CC&N") for the proposed Luke 303 Wastewater Service Area.

1 **II. PURPOSE OF TESTIMONY**

2 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR DIRECT TESTIMONY?**

3 A. The purpose of my testimony in this proceeding is to describe the wastewater
4 service areas and facilities for three of the five districts that are included in this
5 application: Agua Fria Wastewater, Sun City Wastewater, and Sun City West
6 Wastewater.

7 **III. AGUA FRIA WASTEWATER DISTRICT**

8 **Q. PLEASE DESCRIBE THE COMMUNITIES WITHIN THE AGUA FRIA**
9 **WASTEWATER DISTRICT.**

10 A. The Agua Fria Wastewater District provides wastewater service to the master
11 planned communities of Corte Bella, Cross River, Rancho Silverado, Rio Sierra,
12 Dos Rios, Rancho Cabrillo and Coldwater Ranch in what is referred to as the
13 Northeast Agua Fria area, and the communities of Russell Ranch and Verrado in
14 the southern area of the Agua Fria District. The total combined service area
15 covers approximately 26 square miles and serves over 7,250 connections. There
16 are approximately 117 miles of sewer mains, 3.9 miles of force mains, 3 lift
17 stations, 2,938 manholes and 163 cleanouts in the Agua Fria Wastewater District.

18 **Q. HOW IS WASTEWATER FROM THE NORTHEAST AGUA FRIA AREA**
19 **TREATED?**

20 A. A master-planned wastewater collection system sends waste streams by gravity
21 south and east to the Northeast Agua Fria Lift Station No. 1, where it is pumped
22 about a mile to the southeast for treatment at the Company's Northwest Valley
23 Regional Water Reclamation Facility ("NWVWRF") located at 11102 W. Rose
24 Garden Lane, Sun City, AZ. The NWVWRF is a 5.0 million gallons per day

1 (MGD) rated water reclamation facility that treats raw wastewater to B+ effluent
2 standards. The NWVWRF is located in an unincorporated section of Maricopa
3 County and also treats wastewater flows from the Company's Sun City West
4 Wastewater customers. The treatment process consists of screening, grit removal,
5 nitrification and de-nitrification, clarification, post clarification filtration, and
6 liquid chlorine disinfection. The Company operates an aquifer recharge and
7 recovery system to allow for beneficial recharge of reclaimed water from the
8 NWVWRF.

9 **Q. HOW IS WASTEWATER FROM RUSSELL RANCH TREATED?**

10 A. Wastewater flows through a collection system by gravity to a Company-owned
11 wastewater treatment plant. The Russell Ranch Water Reclamation Facility
12 ("Russell Ranch WRF") is a wastewater treatment plant with a design capacity of
13 60,000 gallons per day (gpd). The treatment process includes influent pumping,
14 equalization, biological nutrient removal (nitrification/de-nitrification) using an
15 activated sludge system with clarification, and hypochlorite disinfection, followed
16 by de-chlorination for removal of any chlorine residual. Effluent is recharged to
17 the subsurface via two recharge basins adjacent to the treatment plant. Biosolids
18 are transported to the Company's Verrado Water Reclamation Facility ("Verrado
19 WRF") for solids handling.

20 **Q. HAS THE COMPANY MADE ANY SIGNIFICANT CHANGES TO THE**
21 **RUSSELL RANCH WRF DURING THE TEST YEAR?**

22 A. Yes. In 2015, the Russell Ranch WRF was rehabilitated at a total cost of
23 \$1,008,506 to ensure the continued reliable operation of the plant for the residents
24 of the Russell Ranch community. Repairs at the plant included replacing old

1 structural metal supports and partitions that were showing significant decay,
2 installation of a new bar screen to prevent ragging and damage to internal pumps,
3 a new odor scrubber to handle increasing influent flows, and controllable air flow
4 valves to better manage the wastewater treatment process. The repairs were
5 necessary to maintain the facility at its current approved rated capacity of 60,000
6 gallons per day.

7 **Q. HOW IS WASTEWATER TREATED IN THE VERRADO COMMUNITY?**

8 A. Wastewater collected from the Verrado community flows by gravity through a
9 collection system to the Verrado Water Reclamation Facility ("Verrado WRF").
10 The Verrado WRF has the capacity to treat 830,000 gpd using a conventional
11 activated sludge, biological nutrient removal process to produce effluent that
12 meets A+ effluent standards. The treatment process consists of screening, grit
13 removal, nitrification and de-nitrification, clarification, post clarification filtration,
14 and liquid chlorine disinfection. Pretreatment structures include an in-channel step
15 screen, grit chamber, and influent equalization tank. Secondary treatment
16 structures include two aerobic basins, two anoxic basins, and two clarifiers, all of
17 which operate in parallel. Solids handling consists of an aerobic digester and belt
18 filter press. Dewatered sludge is disposed of off-site at an approved landfill.
19 Reclaimed water is reused by the Verrado community via an extensive reuse
20 irrigation system which provides golf course irrigation and other reclaimed water
21 uses. In addition, there is an Aquifer Recharge Facility one mile northwest of the
22 Verrado WRF which utilizes two vadose zone wells for aquifer recharge. By
23 utilizing reclaimed water, the Verrado community is able to mitigate groundwater
24 use to irrigate the community's golf courses.

1 **IV. SUN CITY WASTEWATER**

2 **Q. PLEASE DESCRIBE THE SUN CITY WASTEWATER DISTRICT.**

3 A. The Sun City Wastewater District is located in the northwest portion of the
4 Phoenix metropolitan area, Maricopa County, and provides wastewater service to
5 the communities of Sun City, Youngtown and portions of the City of Surprise and
6 the City of Peoria. The district is roughly 14 square miles in total land area, with
7 over 22,250 connections and includes a wastewater collection system with seven
8 lift stations and a metering station. There are approximately 280 miles of sewer
9 mains, 9 miles of force mains, 4,595 manholes and 739 cleanouts within the
10 district. EWAZ collects wastewater from this area and delivers it southward
11 through a regional collection system which includes the 99th Avenue Interceptor
12 for treatment at the Tolleson Wastewater Treatment Plant ("Tolleson WWTP"). It
13 is important to note that while wastewater treatment in Sun City is provided by the
14 City of Tolleson, the City of Tolleson also uses an activated sludge treatment
15 process similar to the Company's other wastewater treatment facilities that the
16 Company operates and manages directly.

17 In 2015, the Company's Central Division initiated a comprehensive manhole
18 Rehabilitation and Adjustment Program in Sun City and Sun City West
19 wastewater districts. Most of these manholes are concrete and steel structures
20 dating back to when the collection system was originally installed in the 1960s and
21 1970s, and they have deteriorated and degraded over time due to the harsh
22 corrosive environment created by hydrogen sulfide gas. In addition, many of the
23 manholes were designed and built in utility easements that often run across the
24 front, back and side yards of customers' homes. Over time, these manholes and

1 concrete manhole rings can get damaged, and many of them also get completely
2 covered and hidden by landscaping and rocks. These manholes pose a safety
3 hazard if the concrete deteriorates to the point that the metal lid can actually fall
4 into the manhole, and crumbling concrete creates blockages in the collection
5 system that can lead to a sewer overflow. It is essential that Operations staff be
6 able to locate and easily access all of the manholes to perform sewer line
7 inspections, conduct scheduled sewer cleaning and maintenance programs,
8 perform roach control pesticide spraying, and perform emergency cleanouts if
9 there is a blockage in the collection system that could lead to a sewer overflow. In
10 2015, the Company's Central Division rehabilitated and coated 94 manholes in
11 Sun City at an average cost of \$8,566 per manhole, and made minor, life
12 extending adjustments (e.g., raising, replacing manhole rings, etc.) to another 190
13 manholes at an average cost of \$770 per manhole. The total cost of the program in
14 2015 was \$917,232 dollars. In 2016, the Company will rehabilitate another 25
15 manholes and will make minor adjustments to approximately 100 manholes.
16 Going forward, the Company will rehabilitate and adjust manholes in Sun City on
17 a programmatic basis based on routine inspections to ensure continued safe and
18 reliable wastewater service to customers.

19 **V. TOLLESON AGREEMENT**

20 **Q. YOU DISCUSSED THE TOLLESON WWTP PREVIOUSLY. IS THERE**
21 **AN AGREEMENT THAT COVERS THE COMPANY'S RIGHTS AND**
22 **OBLIGATIONS IN RELATION TO THE TOLLESON WWTP?**

23 **A.** Yes. Following the acquisition of the Arizona water and wastewater utility
24 properties owned by Citizens Utilities Company ("Citizens") in 2002 by EWAZ's
25 predecessor, Arizona-American Water Company (now EPCOR Water Arizona

1 Inc.), Arizona-American assumed all of Citizens' rights and obligations under the
2 terms of a Sewage Treatment and Transportation Agreement dated June 21, 1985
3 ("Tolleson Agreement"). The Tolleson Agreement has been amended three times,
4 with the Third Amendment occurring on April 22, 2003. The Third Amendment
5 to the Tolleson Agreement increased one of the three existing rate components
6 (Rate Component 3) and added a fourth rate component, hereinafter, referred to as
7 Rate Component 4. Rate Component 4 is intended to provide for the Company's
8 pro-rata share of the capital improvement projects and facilities additions
9 described in the Third Amendment.

10 **Q. ARE THERE ANY ADDITIONAL AMENDMENTS TO THE TOLLESON**
11 **AGREEMENT?**

12 A. Yes. On June 9, 2015, the City of Tolleson and EWAZ entered into a Fourth
13 Amendment to the Tolleson Agreement.

14 **Q. WHAT IS THE PURPOSE OF THE FOURTH AMENDMENT TO THE**
15 **TOLLESON AGREEMENT?**

16 A. Disputes had arisen between the City of Tolleson and EWAZ regarding the
17 interpretation of provisions in the Third Amendment pertaining to the
18 identification of capital projects and the determination of EWAZ's pro rata share
19 of the Rate Component Three and Rate Component Four expenditures.

20 **Q. PLEASE SUMMARIZE THE TERMS OF THE FOURTH AMENDMENT**
21 **TO THE TOLLESON AGREEMENT?**

22 A. In the Fourth Amendment, the City of Tolleson and EWAZ reached an agreement
23 on the capital projects that were the subject to the Third Amendment and agreed to
24 a process of identifying future capital projects necessary to maintain the viability

1 of the Tolleson WWTP and the associated share of costs for which EWAZ would
2 be responsible.

3 **Q. HOW DOES THE TOLLESON AGREEMENT DELINEATE DIFFERENT**
4 **COSTS?**

5 A. Under the terms of the amended Tolleson Agreement, the Company is responsible
6 for separate types of payments to the City of Tolleson. Rate Component One is a
7 fixed annual "usufructory" or user charge related to bond financing issued by the
8 City of Tolleson to pay the original plant additions made by Tolleson to receive
9 and treat wastewater flows from Sun City. Rate Component Two is a monthly
10 operations & maintenance ("O&M") charge based on the Company's proportionate
11 share of the actual O&M costs based on actual flows. Rate Component Three is a
12 \$20,000 monthly payment for a replacement and contingencies reserve up to an
13 aggregate annual balance of \$200,000. Rate Component Four is a capital
14 construction charge to address capital-improvement projects and facilities
15 additions identified in a June 2001 Wastewater Treatment Plant Infrastructure
16 Assessment Phase I Study performed for Tolleson by Brown and Caldwell
17 Environmental Engineers and Consultants.

18 **Q. PLEASE DESCRIBE RATE COMPONENT THREE IN MORE DETAIL.**

19 A. Rate Component Three is a contingencies and reserve account. The City of
20 Tolleson uses this account to make small capital improvements and emergency
21 replacements for plant process equipment. An example would be if a pump motor
22 burned out, and the City had to replace it.

1 **Q. HOW IS EWAZ BILLED FOR RATE COMPONENT THREE?**

2 A. Each month, the City of Tolleson bills the Company for Rate Component Three
3 along with the Rate Component Two O&M costs associated with its regular
4 monthly billing process.

5 **Q. IS THERE A LIMIT TO HOW MUCH THE CITY OF TOLLESON CAN**
6 **BILL EWAZ FOR RATE COMPONENT THREE?**

7 A. Yes. Per the Tolleson Agreement, the Company must maintain an aggregate
8 contingencies and reserve balance of \$200,000 with the City of Tolleson. What
9 this means is, at any moment in time, the City of Tolleson cannot have more than
10 \$200,000 in their contingencies and reserve account. Also, no single billing for
11 this activity can exceed more than \$20,000 in a single month. It should also be
12 noted that, prior to April 2003, Rate Component Four did not exist. An
13 amendment to the Agreement created Rate Component Four. As a consequence,
14 projects that are now considered Rate Component Four were, prior to April 2003,
15 considered Rate Component Three projects.

16 **Q. HOW ARE THESE TOLLESON RATE COMPONENTS REFLECTED IN**
17 **THE COMPANY'S RATE REQUEST IN THIS PROCEEDING?**

18 A. Please refer to the direct testimony of Ms. Sarah M. Mahler for the rate base
19 treatment and the direct testimony of Ms. Sandra L. Murrey for the operating
20 income treatment of these rate components.

21 **Q. WOULD IT MAKE SENSE FOR EWAZ TO BUILD ITS OWN**
22 **TREATMENT FACILITY TO ADDRESS THE FLOWS SENT TO THE**
23 **TOLLESON WWTP?**

1 A. Not at this time. First, EWAZ has a contractual obligation for wastewater
2 treatment services pursuant to the terms of the Tolleson Agreement. Second, in
3 order to construct a wastewater treatment facility, EWAZ would need to secure a
4 location for a wastewater treatment facility. A large parcel of land in the Sun
5 Cities area would likely be extremely difficult to locate and could be very
6 expensive as well. Third, the regulatory requirements for construction of a new
7 facility are numerous and burdensome. Fourth and finally, the cost of construction
8 of new facilities continues to increase. Even if EWAZ was able to acquire land for
9 a wastewater treatment facility and obtain all of the requisite regulatory approvals,
10 the construction costs alone for a 5.2 million gallon-per-day plant would exceed
11 \$50,000,000 based on the cost estimates for the Company's Luke 303 wastewater
12 treatment facility.

13 **VI. SUN CITY WEST WASTEWATER**

14 **Q. PLEASE DESCRIBE THE SUN CITY WEST WASTEWATER DISTRICT.**

15 A. The Sun City West Wastewater District is also located in the northwest portion of
16 the Phoenix metropolitan area, Maricopa County, almost entirely north of Bell
17 Road and east of Grand Avenue, and provides wastewater service to just over
18 15,000 connections in the community of Sun City West. This District covers
19 approximately 10.5 square miles in land area and includes a wastewater collection
20 system with a single lift station located at the northwest corner of Bell Road and
21 El Mirage Road. The wastewater is collected by gravity and then lifted, or
22 boosted, for treatment at EWAZ's NWVWRF. The District includes almost 180
23 miles of sewer mains, 3.5 miles of force mains, 2,700 manholes and over 400
24 cleanouts.

1
2 In 2015, the Company's Central Division rehabilitated and coated 34 manholes in
3 Sun City West at an average cost of \$8,697 per manhole, and made minor, life
4 extending adjustments (e.g., raising, replacing manhole rings, etc.) to another 115
5 manholes at an average cost of \$770 per manhole. The total cost of the program in
6 2015 was \$394,754 dollars. In 2016, the Company's Central Division will make
7 adjustments to approximately 100 manholes. Going forward, the Company will
8 rehabilitate and adjust manholes in Sun City West on a programmatic basis based
9 on routine inspections to ensure continued safe and reliable wastewater service to
10 customers.

11 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

12 **A.** Yes.

Murrey Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman

BOB STUMP

TOM FORESE

BOB BURNS

ANDY TOBIN

IN THE MATTER OF THE APPLICATION
OF EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT
FAIR VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR
INCREASES/DECREASES IN ITS RATES
AND CHARGES BASED THEREON FOR
UTILITY SERVICE BY ITS AGUA FRIA,
ANTHEM, MOHAVE, SUN CITY, AND SUN
CITY WEST WASTEWATER DISTRICTS
AND FOR CONSIDERATION OF
CONSOLIDATION AND DE-
CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
SANDRA L. MURREY
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

Page i

**DIRECT TESTIMONY
OF
SANDRA L. MURREY
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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EXECUTIVE SUMMARY

Ms. Sandra L. Murrey sponsors the following C Schedules on behalf of the Company:

Schedule C-1:	Adjusted Test Year Income Statement
Schedule C-2:	Income Statement Pro Forma Adjustments
Schedule C-3:	Computation of Gross Revenue Conversion Factor

Ms. Murrey also sponsors the following pro forma adjustments to the C Schedules:

SLM-IS1	Remove Unbilled Revenue
SLM-IS3	Federal and State Income Taxes
SLM-IS4	Interest Synchronization with Rate Base
SLM-IS6	Annualization of Customers
SLM-IS7	Removal of General Disallowable Items
SLM-IS8	Annualize Labor and Labor Related Expenses
SLM-IS10	Removal of 10% of Performance Based Compensation
SLM-IS13	Rate Case Expense
SLM-IS14	Update Regulatory Expense
SLM-IS15	Adjust Legal Expense
SLM-IS19	Intentionally Left Blank
SLM-IS28	Reclass Effluent from Water to Wastewater (applicable to Mohave Wastewater only)
SLM-IS31	Low Income Program Costs

Ms. Murrey sponsors the following E Schedules on behalf of the Company:

Schedule E-1:	Comparative Balance Sheets
Schedule E-2:	Comparative Income Statements
Schedule E-3:	Comparative Statement of Changes in Financial Position
Schedule E-4:	Statement of Changes in Stockholders Equity
Schedule E-6:	Comparative Departmental Statements of Operating Income
Schedule E-7:	Operating Statistics
Schedule E-8:	Taxes Charged to Operations
Schedule E-9:	Notes to Financial Statements

Ms. Murrey also sponsors Schedule F-1, Projected Income Statements and Exhibit H-6,
Proposed Tariffs.

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE NUMBER.

A. My name is Sandra L. Murrey. My business address is 2355 West Pinnacle Peak Road, Suite 300, Phoenix, Arizona 85027, and my business phone is 623-445-2490.

Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?

A. I am employed by EPCOR Water USA ("EWUS"), as a Senior Rate Analyst.

Q. PLEASE DESCRIBE YOUR PRIMARY RESPONSIBILITIES FOR THE COMPANY.

A. My primary responsibilities are to prepare and support rate applications and other regulatory filings for EPCOR Water Arizona Inc. ("EWAZ" or "Company") and EPCOR Water New Mexico Inc. ("EWNM").

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATION.

A. I joined EWUS (formerly Arizona-American Water Company) in 2007 as a Regional Capital Compliance Analyst and was promoted to the position of Rate Analyst in December of 2008 and to Senior Rate Analyst in April of 2012. I have over 26 years of experience working in the public utility industry, most of that time being employed with WE Energies. My responsibilities there included financial reporting, pension analysis, unbilled revenue calculations, accounts payable and power marketing settlements. I progressed to Project Manager in the

1 Federal Regulatory Affairs and Policy Group where my responsibilities included
2 monitoring tariffs to assure compliance with all federal/state decisions and rulings,
3 tracking industry changes to determine company impact, as well as interactions
4 with the Federal Energy Regulatory Commission, North American Electric
5 Reliability Corporation, North American Energy Standards Board, and the
6 National Association of Regulatory Utility Commissioners (a.k.a. NARUC) to
7 assure WE Energies' position was fairly represented.

8 I have a Bachelor of Business Administration degree with a double major in
9 Accounting and Real Estate from the University of Wisconsin – Milwaukee. I am
10 a certified public accountant, licensed in the states of Arizona and Wisconsin.
11 I have also attended the NARUC Utility Rate School.

12 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

13 **A.** Yes.

14 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

15 **A.** The purpose of my testimony is to support the *pro forma* adjustments that impact
16 revenues and expenses in determining the revenue requirements for EWAZ's five
17 wastewater districts on a consolidated basis, a stand-alone basis and a
18 deconsolidated basis by wastewater treatment facility. The five wastewater
19 districts are Agua Fria Wastewater, Anthem Wastewater, Mohave Wastewater,
20 Sun City Wastewater, and Sun City West Wastewater. The deconsolidation by
21 wastewater facility results in seven districts which are as follows: 1) Verrado
22 Wastewater District; 2) Russell Ranch Wastewater District; 3) Anthem
23 Wastewater District; 4) Wishing Well Wastewater District; 5) Arizona Gateway

1 Wastewater District; 6) Sun City Wastewater District; and the 7) Northwest Valley
2 Wastewater District (a combination of the portion of the Agua Fria district
3 comprised of Corte Bella, Cross River, Rancho Silverado, Rio Sierra, Dos Rios,
4 Rancho Cabrillo and Coldwater Ranch in what is referred to as the Northeast Agua
5 Fria area and Sun City West Wastewater District).

6 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

7 A. My testimony first presents the schedules that are required by the Commission's
8 filing requirements for financial and statistical information identified in the
9 Arizona Administrative Code at Title 14, Chapter 2, Section 103 (A.A.C. R14-2-
10 103) that I am sponsoring. Next, I summarize the Company's calculated
11 Operating Income for all of the districts in this Application followed by a
12 discussion of the pro forma adjustments that I am sponsoring.

13 **Q. THE COMPANY'S POSITION IS THAT THE COMMISSION SHOULD**
14 **CONSOLIDATE ITS WASTEWATER DISTRICTS. ARE YOU**
15 **SPONSORING ADJUSTMENTS IN SUPPORT OF THE**
16 **CONSOLIDATION OF EWAZ'S FIVE WASTEWATER DISTRICTS?**

17 A. Yes.

18 **Q. WHAT METHODOLOGY HAVE YOU EMPLOYED TO CONSOLIDATE**
19 **THE *PRO FORMA* ADJUSTMENTS OF THE STAND-ALONE DISTRICTS**
20 **IN THIS PROCEEDING?**

21 A. The individual *pro forma* adjustments for Agua Fria Wastewater, Anthem
22 Wastewater, Mohave Wastewater, Sun City Wastewater, and Sun City West

Wastewater have been combined for each income statement adjustment and are summarized on the Arizona Wastewater Schedules.

Q. DOES YOUR TESTIMONY INCORPORATE RECOMMENDATIONS OF OTHER COMPANY WITNESSES?

A. Yes. I have incorporated recommendations sponsored by Ms. Sheryl Hubbard, Ms. Sarah M. Mahler, and Mr. Jon Boizelle as *pro forma* adjustments to test year revenues and expenses when applicable.

II. SPONSORED SCHEDULES

A C SCHEDULES – TEST YEAR INCOME STATEMENTS

Q. PLEASE IDENTIFY THE SPECIFIC C SCHEDULES YOU ARE SPONSORING:

A. I am sponsoring the following schedules for the Company:

1	Schedule C-1:	Adjusted Test Year Income Statement
2	Schedule C-2:	Income Statement Pro Forma Adjustments
3	Schedule C-3:	Computation of Gross Revenue Conversion Factor

Q. WERE THESE SCHEDULES PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes, they were.

Q. PLEASE EXPLAIN SCHEDULE C-1:

A. Schedule C-1 titled "Adjusted Test Year Income Statement" sets forth revenues and expenses and the resulting net income both on an historical unadjusted basis and an adjusted (including pro forma adjustments) basis. This schedule also

1 contains a summary of the proposed revenue increase and the associated tax
2 effects, as well as an allowance for bad debt expense related to the revenue
3 increase.

4 **Q. PLEASE EXPLAIN SCHEDULE C-2:**

5 A. Schedule C-2 titled "Income Statement Pro Forma Adjustments" presents all *pro*
6 *forma* adjustments and the adjusted 2015 test year revenues and expenses. I will
7 sponsor some of the adjustments on Schedule C-2, as included in my testimony
8 below. Others, including Ms. Sarah Mahler and Mr. Jon Boizelle, will sponsor the
9 remaining adjustments. The proposed revenue increase was provided to Company
10 witness Ms. Connie Heppenstall who is responsible for the development of the H
11 Schedules that support the derivation of the present and proposed revenues in this
12 case.

13 **Q. PLEASE EXPLAIN SCHEDULE C-3:**

14 A. Schedule C-3 titled "Computation of Gross Revenue Conversion Factor"
15 illustrates the calculation of the gross revenue conversion factor using federal and
16 state income taxes, property taxes, and bad debt expense. This factor is utilized on
17 Schedule A-1 and throughout this case to adjust revenues and expenses to account
18 for taxes and uncollectible revenues.
19

B E SCHEDULES – FINANCIAL STATEMENTS AND
STATISTICAL DATA

Q. PLEASE IDENTIFY THE SPECIFIC E SCHEDULES YOU ARE
SPONSORING:

A. I am sponsoring the following schedules for the Company:

- | | | |
|----------|----------------------|--|
| 1 | Schedule E-1: | Comparative Balance Sheets |
| 2 | Schedule E-2: | Comparative Income Statements |
| 3 | Schedule E-3: | Comparative Statement of Changes in |
| | | Financial Position |
| 4 | Schedule E-4: | Statement of Changes in Stockholders Equity |
| 5 | Schedule E-6: | Comparative Departmental Statements of |
| | | Operating Income |
| 6 | Schedule E-7: | Operating Statistics |
| 7 | Schedule E-8: | Taxes Charged to Operations |
| 8 | Schedule E-9: | Notes to Financial Statements |

Q. WERE THESE SCHEDULES PREPARED BY YOU OR UNDER YOUR
SUPERVISION?

A. Yes, they were.

Q. PLEASE EXPLAIN SCHEDULE E-1.

A. Schedule E-1 for each of EWAZ's districts titled "Comparative Balance Sheets"
contains balance sheets for the Test Year Ended December 31, 2015 and prior
years ending December 31, 2014 and December 31, 2013. Balance Sheets are
presented with and without corporate allocations.

1 **Q. PLEASE EXPLAIN SCHEDULE E-2.**

2 A. Schedule E-2 is titled "Comparative Income Statements". This schedule
3 summarizes each district's unadjusted Income Statements as reflected in the
4 Company's accounting records for years ended December 31, 2013 to December
5 31, 2015, and includes each district's allocated share of corporate expenses.

6 **Q. PLEASE EXPLAIN SCHEDULE E-3.**

7 A. Schedule E-3 is titled "Comparative Statements of Changes in Financial Position".
8 This schedule summarizes the sources and applications of funds by the districts for
9 the Test Year Ended December 31, 2015 and prior years ending December 31,
10 2014 and December 31, 2013.

11 **Q. PLEASE EXPLAIN SCHEDULE E-4.**

12 A. Schedule E-4 is titled "Statement of Changes in Stockholders Equity."
13 This schedule details the changes in components comprising stockholder's equity
14 since December 31, 2012 through the end of the test year.

15 **Q. PLEASE EXPLAIN SCHEDULE E-6.**

16 A. Schedule E-6 titled "Comparative Departmental Statements of Operating Income"
17 summarizes the operating income statements on a functional basis for the Test
18 Year Ended December 31, 2015, as well as for the prior two years.

19 **Q. PLEASE EXPLAIN SCHEDULE E-7.**

20 A. Schedule E-7 titled "Operating Statistics" displays the operating statistics for sales
21 quantities and customers for the test year as well as the prior two years.

1 **Q. PLEASE EXPLAIN SCHEDULE E-8.**

2 A. Schedule E-8 titled "Taxes Charged to Operations" provides details regarding
3 taxes incurred for the test year as well as the prior two years.

4 **Q. PLEASE EXPLAIN SCHEDULE E-9.**

5 A. Schedule E-9 titled "Notes to Financial Statements" provides a list of notes
6 specific to each district.

7
8 **C F SCHEDULES – PROJECTIONS AND FORECASTS**

9 **Q. PLEASE IDENTIFY THE SPECIFIC F SCHEDULES YOU ARE**
10 **SPONSORING.**

11 A. I am sponsoring the following schedule for the Company:

12 **1 Schedule F-1: Projected Income Statements**

13 **Q. WERE THESE SCHEDULES PREPARED BY YOU OR UNDER YOUR**
14 **SUPERVISION?**

15 A. Yes, they were.

16 **Q. PLEASE EXPLAIN SCHEDULE F-1.**

17 A. Schedule F-1 titled "Projected Income Statements – Present and Proposed Rates"
18 displays the test year income and forecasted income for the year ending December
19 31, 2016, using test year rates and proposed revenue from this case.

D H SCHEDULES – EFFECT OF PROPOSED RATE SCHEDULES

**Q. PLEASE IDENTIFY THE SPECIFIC H SCHEDULES YOU ARE
SPONSORING.**

**A. I am sponsoring the following schedule for each of the stand-alone districts and
the proposed overall consolidated wastewater district of the Company:**

1 Schedule H-6: Proposed Tariffs

**Q. WERE THESE SCHEDULES PREPARED BY YOU OR UNDER YOUR
SUPERVISION?**

A. Yes, they were.

Q. PLEASE EXPLAIN SCHEDULE H-6.

**A. Schedule H-6 is representative of our existing tariffs and has been revised to
reflect the change in the usage charges and commodity charges that the Company
is proposing in this case.**

**Q. IS EWAZ ASKING FOR REVISED ESTABLISHMENT, RE-
ESTABLISHMENT AND/OR RECONNECTION OF SERVICE CHARGES
FOR THE DISTRICTS IN THIS RATE CASE?**

**A. Yes. The five wastewater districts currently have varying levels of service charges.
Commission Rule 14-2-403-D authorizes a water utility to charge for the
establishment, reestablishment, or reconnection of utility services. Should service
be established during a period other than regular working hours at the customer's
request, the Commission has approved an after-hour charge for the service
connection. The Company's average employee's wages and benefits do not vary
from district to district and the time to complete the process is consistent. As**

such, it makes sense to standardize service charges in each district. Table 1 below summarizes the charges currently authorized in each district.

TABLE 1 - Existing Miscellaneous Charges						
District		Agua Fria WW	Anthem WW	Mohave WW	Sun City WW	Sun City West WW
Establishment / Reestablishment and / or reconnection of service	Regular Hours	\$30.00	\$30.00	\$35.00	\$30.00	\$30.00
	After Hours	\$45.00	\$45.00	-	-	-
Reconnection of service (delinquent)	Regular Hours	\$40.00	\$40.00	\$35.00	\$40.00	\$40.00
	After Hours	\$55.00	\$55.00	-	-	-
After hours service charge		-	-	\$35.00	-	-
NSF Check Charge		\$15.00	\$15.00	\$25.00	\$10.00	\$25.00
Late Fee Charge		1.50%	1.50%	1.50%	-	-
Deferred Payment Finance Charge		-	-	1.50%	-	-

The Company requests that the service charges be modified to match service charges approved in Decision No. 75268 (September 8, 2015) in Docket No. WS-01303A-14-0010.

Q. PLEASE SUMMARIZE THE PROPOSED SERVICES CHARGES THE COMPANY IS REQUESTING

A. The following services charges are proposed for EWAZ's five wastewater districts to align with service charges currently in place in Decision No. 75268.

SERVICE CHARGES

- Establishment or Re-establishment of Service \$35.00

- Re-establishment of Wastewater Utility Service within 12 Months:

1. Monthly Minimum Times Number of Months Disconnected from
Wastewater System

- Reconnection of Service (Delinquent) \$35.00
- Deposit (a)
- Deposit Interest (a)
- NSF Check \$25.00
- Deferred Payment (per month) 1.5%
- Late Payment Fee (per month) 1.5%
- After Hour Service Charge (b) \$35.00

(a) Per Commission rule R-14-2-603.B.

(b) After Hours Service: After regular working hours, on Saturday,
Sunday or holidays if at the customer's request.

In addition to the collection of regular rates, the utility will collect from its
customers a proportionate share of any privilege, sales, use and franchise tax. Per
Commission Rule 14-2-609(D)(5).

SERVICE LINE CONNECTION CHARGES (NON-REFUNDABLE)

- | | |
|---------------------|------|
| ▪ Residential | Cost |
| ▪ Commercial | Cost |
| ▪ School | Cost |
| ▪ Multiple Dwelling | Cost |
| ▪ Mobile Home Park | Cost |
| ▪ Effluent | Cost |

1 **Q. ARE THE PROPOSED CHANGES TO THE MISCELLANEOUS SERVICE**
2 **CHARGES REFLECTED ON SCHEDULE H-6?**

3 A. Yes. The Company is providing proposed tariffs for Miscellaneous Service
4 charges for each of the existing, stand-alone wastewater districts as well as a
5 proposed overall consolidated wastewater district.

6 **III. ADJUSTED OPERATING INCOME (ALL DISTRICTS)**

7 **Q. WHAT IS EWAZ'S ADJUSTED TEST YEAR OPERATING INCOME BY**
8 **DISTRICT IN THIS PROCEEDING?**

9 A. The following table summarizes Adjusted Test Year Operating Income for each
10 wastewater district seeking rate increases in this proceeding:

11 **Table 1 – Adjusted Test Year Operating Income -All Districts**

	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Adjusted Test Year Operating Income	\$641,505	\$711,844	\$250,792	\$1,429,896	\$676,312	\$3,710,348

12 **A. OPERATING REVENUES**

13 **Q. WHAT IS EWAZ'S ADJUSTED TEST YEAR REVENUES BY DISTRICT**
14 **IN THIS PROCEEDING?**

15 A. The following table summarizes Adjusted Test Year Operating Revenues for each
16 wastewater district.
17

Table 2 – Adjusted Test Year Revenues -All Districts

	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Adjusted Test Year Revenues	\$6,051,044	\$6,923,079	\$1,507,737	\$8,956,435	\$7,319,872	\$30,758,167

B. OPERATING EXPENSES

Q. WHAT ARE EWAZ'S REQUESTED TOTAL OPERATING EXPENSES BY DISTRICT?

A. The following tables summarize Adjusted Test Year Operating Expenses for each Wastewater district.

Table 3 – Adjusted Test Year Operating Expenses -All Districts

	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Adjusted Test Year Operating Expenses	\$5,409,539	\$6,211,234	\$1,256,946	\$7,526,539	\$6,643,560	\$27,047,818

IV. INCOME STATEMENT PRO FORMA ADJUSTMENTS

Q. WHAT PRO FORMA INCOME STATEMENT ADJUSTMENTS IS EWAZ PROPOSING TO THE HISTORICAL TEST YEAR?

A. EWAZ has identified known and measurable changes to the historical test year revenues and expenses. Listed below are those pro forma income statement adjustments that are common to all wastewater districts except where noted.

SLM-IS1 Remove Unbilled Revenue

JPB-IS2 Adjust Property Tax to Reflect Proposed Revenues

1	SLM-IS3	Federal and State Income Taxes
2	SLM-IS4	Interest Synchronization with Rate Base
3	JPB-IS5	Bad Debt Expense
4	SLM-IS6	Annualization of Customers
5	SLM-IS7	Removal of General Disallowable Items
6	SLM-IS8	Annualize Labor and Labor Related Expenses
7	JPB-IS9	Purchased Power
8	SLM-IS10	Removal of 10% of Performance Based Compensation
9	JPB-IS11	Postage Increase
10	JPB-IS12	Customer Care and Billing Services
11	SLM-IS13	Rate Case Expense
12	SLM-IS14	Update Regulatory Expense
13	SLM-IS15	Adjust Legal Expense
14	SMM-IS16	Annualize Depreciation Expense on Direct Plant
15	SMM-IS17	Annualize Depreciation Expense on Corporate Plant
16	SMM-IS18	Decision No. 75268 Regulatory Treatment (<i>applicable to</i>
17		<i>Mohave Wastewater only</i>)
18	SLM-IS19	Intentionally Left Blank
19	SMM-IS20	Annualize Depreciation Expense on NWVRTF Plant
20	SMM-IS21	Annualize Depreciation Expense on 6U
21	SMM-IS22	Annualize Amortization of Gross CIAC
22	SMM-IS23	Depreciation on Post Test Year Plant
23	SMM-IS24	Depreciation on 2017 Post Test Year Plant – 6 Months
24	SMM-IS25	Corporate Allocations
25	SMM-IS26	Tolleson Facility Improvements (<i>applicable to Sun City</i>
26		<i>Wastewater only</i>)

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1	SMM-IS27	Glendale Agreement Replacement Costs (<i>applicable to Sun</i>
2		<i>City Wastewater only</i>)
3	SLM IS28	Reclass Effluent from Water to Wastewater (<i>applicable to</i>
4		<i>Mohave Wastewater only</i>)
5	JPB-IS29	CPI Increase
6	JPB-IS30	Cityworks License Fees
7	SLM-IS31	Low Income Program Costs
8	SMM-IS32	City of Glendale – O&M Interceptor (<i>applicable</i>
9		<i>to Sun City Wastewater only</i>)
10	JPB-IS33	Customer Communication & Education
11	SMM-IS34	Reclassification of Vactor Trucks
12	JPB-IS35	Anthem Power Cost (<i>applicable to Anthem Wastewater only</i>)
13	SMM-IS36	Insurance Other Than Group

14 **Q. WHO IS SPONSORING THE *PRO FORMA* ADJUSTMENTS LISTED**
15 **ABOVE?**

16 A. I will sponsor and discuss in greater detail below those adjustments identified by
17 SLM-ISXX, where XX represents a number. The remaining adjustments are
18 sponsored by Ms. Sarah Mahler (SMM-ISXX) and Mr. Jon Boizelle (JPB-ISXX),
19 and are discussed in their respective direct testimonies.

20 **A. SLM – IS1: REMOVE UNBILLED REVENUE**

21 **Q. WHAT IS ADJUSTMENT SLM-IS1 – REMOVE UNBILLED REVENUE?**

22 A. Adjustment SLM-IS1 is a *pro forma* adjustment to remove unbilled revenues from
23 the test year booked revenues. Unbilled revenue is an estimate of the usage at the
24 end of the month that has yet to be billed. Because the Company performs a
25 separate bill analysis to annualize district revenues, which involves incorporating

1 any changes in customer counts or rate increases that occurred in the test year, it is
2 not appropriate to consider unbilled revenues in this calculation. Therefore,
3 unbilled revenues are removed.

4 **Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE**
5 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
6 **TREATMENT FACILITY?**

7 A. The actual unbilled revenues utilized in this calculation are specifically identified
8 for each existing stand-alone district and then aggregated for a total consolidated
9 wastewater district. Revenues have been deconsolidated within the Agua Fria and
10 Mohave districts by segregating the billing determinants by meter route.

11 **B. SLM – IS3: FEDERAL AND STATE INCOME TAXES**

12 **Q. WHAT IS ADJUSTMENT SLM-IS3 – FEDERAL AND STATE INCOME**
13 **TAXES?**

14 A. Adjustment SLM-IS3 is a *pro forma* adjustment that adjusts test year income taxes
15 to reflect the federal and state income tax effects of the *pro forma* adjustments
16 included on Schedule C-2.

17 **Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE**
18 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
19 **TREATMENT FACILITY?**

20
21 A. The federal and state income taxes are calculated based on each district's
22 operating income as shown on Schedule C-2.

C. SLM – IS4: INTEREST SYNCHRONIZATION WITH RATE BASE

Q. WHAT IS ADJUSTMENT SLM-IS4 – INTEREST SYNCHRONIZATION WITH RATE BASE?

A. Adjustment SLM-IS4 is a *pro forma* adjustment to synchronize the interest deduction that is a function of rate base and weighted cost of debt and the interest deduction that is a component in the test year income tax calculation. For ratemaking purposes, a utility's revenue requirement reflects the recovery of interest expense based on the weighted cost of debt in the capital structure. It is this interest expense that should be used for the interest deduction when calculating the tax expense. An Interest Synchronization adjustment is necessary to match the rate base used in determining revenue requirements with the proportionate part of the total amount of debt and equity used to determine the cost of capital. The amount of interest expense that customers contribute through their payment of wastewater rates should be the same as the amount of interest expense deducted from revenues in calculating tax expense. Synchronizing the interest deduction for ratemaking with the interest deduction for earnings purposes accomplishes this goal.

Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER TREATMENT FACILITY?

A. Interest Synchronization is calculated based on each district's original cost rate base as shown on Schedule B-1.

D. SLM – IS6: ANNUALIZATION OF CUSTOMERS

Q. WHAT IS ADJUSTMENT SLM-IS6 – ANNUALIZATION OF CUSTOMERS?

A. Adjustment SLM-IS6 is a *pro forma* adjustment to annualize revenues for the average customer population during the year rather than the year-end count. At December 31, 2015, the customer population is at its highest, and does not properly reflect the experiences of the Company due to seasonality of residents.

Q. DID YOU ALSO ADJUST OPERATING EXPENSES WHEN YOU ADJUSTED REVENUE FOR THE CHANGE IN TEST YEAR CUSTOMERS?

A. Yes. For each district, Purchased Water, Fuel & Power, Chemicals, as well as Other Customer Accounting expenses were adjusted based on the change in the number of customer bills.

Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER TREATMENT FACILITY?

A. This adjustment consists of two parts, an adjustment to revenues as well as a corresponding adjustment to operating expenses. The revenue portion of this adjustment was deconsolidated by meter routes. The adjustment for operating expenses was allocated to the deconsolidated districts using an allocation factor based on general metered customers (“GMC”).

E. SLM – IS7: REMOVAL OF GENERAL DISALLOWABLE ITEMS

Q. WHAT IS ADJUSTMENT SLM-IS7 – REMOVAL OF GENERAL DISALLOWABLE ITEMS?

A. Adjustment SLM-IS7 is a *pro forma* adjustment that removes expenses that would typically be disallowed for ratemaking purposes, such as charitable and civic contributions and other miscellaneous expenses that are normally not recoverable from customers. While the Company still believes these expenses should be recoverable through rates, we have removed them to minimize issues in dispute.

Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER TREATMENT FACILITY?

A. This adjustment is allocated to each deconsolidated district using a weighted-average 3-factor wastewater allocation percentage based on a combination of number of customers, wastewater flows treated, and gross plant. Deconsolidated districts are then aggregated for a total consolidated adjustment.

F. SLM – IS8: ANNUALIZE LABOR AND LABOR RELATED EXPENSES

Q. PLEASE EXPLAIN ADJUSTMENT SLM-IS8 – ANNUALIZE LABOR AND LABOR RELATED EXPENSES.

A. This *pro forma* adjustment annualizes the labor charges at the end of the test year and calculates the payroll tax expense associated with the change in payroll expense based on employees employed by EWAZ at the end of the test year. This adjustment recognizes actual labor rates in effect as of the filing date for this rate

1 application and increases them by 3% to reflect labor costs at the time rates in this
2 case are expected to go into effect. This adjustment also annualizes the various
3 employee benefit-related items including group insurance, 401(k), and pension
4 expense. Group Insurance includes premiums for life insurance, medical
5 insurance, dental insurance, long-term disability insurance and short-term
6 disability. A portion of this adjustment segregates all group insurance items and
7 applies the current 2016 premium cost per benefit for each employee. Also
8 included in this pro forma adjustment is the annualization of the Company's
9 contribution to its employees' 401(k) retirement savings program. This consists of
10 the Company's contribution of 5.25% of the employees' pay as well as the
11 Company's 100% matching of the first 3% of the employee contribution and an
12 additional 50% matching of employee contributions greater than 3% up to 5%.
13 Finally, employees hired before January 1, 2006, are eligible for a defined-benefit
14 pension. This adjustment also annualizes the increase in pension costs based on
15 the 2016 funding liability based on an actuarial determination.

16 **Q. WHAT IS THE BASIS OF ADJUSTMENT SLM-IS8 IN THE DISTRICTS**
17 **DECONSOLIDATED ON THE BASIS OF WASTEWATER TREATMENT**
18 **FACILITY?**

19 **A.** This adjustment is allocated to each deconsolidated district using a weighted-
20 average 3-factor wastewater allocation percentage based on a combination of
21 number of customers, wastewater flows treated, and gross plant. Deconsolidated
22 districts are then aggregated for a total consolidated adjustment.

G. SLM - IS10: REMOVAL OF 10% OF PERFORMANCE BASED

COMPENSATION

Q. PLEASE EXPLAIN ADJUSTMENT SLM-IS10 – REMOVAL OF 10% OF PERFORMANCE BASED COMPENSATION.

A. This *pro forma* adjustment removes the financial component of the year Performance Based Compensation Plan for the test year. The financial component represents 10% of the target for Performance Based Compensation payout per employee.

Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER TREATMENT FACILITY?

A. This adjustment is allocated to each deconsolidated district using a weighted-average 3-factor wastewater allocation percentage based on a combination of number of customers, wastewater flows treated, and gross plant. Deconsolidated districts are then aggregated for a total consolidated adjustment.

H. SLM - IS13: RATE CASE EXPENSE

Q. PLEASE EXPLAIN ADJUSTMENT SLM-IS13 – RATE CASE EXPENSE?

A. Adjustment SLM-IS13 is a *pro forma* adjustment necessary to include the annual rate case expense amortization to be recovered in customers' rates. This amortization is determined by taking the total estimated rate case expense and amortizing the expense over a three year period. Please refer to the Direct Testimony of Company witness Ms. Sheryl L. Hubbard for details on how the total estimated rate case expense was derived.

1 **Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE**
2 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
3 **TREATMENT FACILITY?**

4 A. A couple of methods of allocation were used in this adjustment. Costs related to
5 the effort to deconsolidate Agua Fria Wastewater and Mohave Wastewater were
6 allocated only to those two districts and then those costs were allocated to the
7 deconsolidated districts based on the plant balances of the respective sub-districts
8 as determined by the Ernst & Young Study ("EY Study"). The remaining rate case
9 expenses benefit all districts and were allocated by a 4-factor allocator based on a
10 composite of the five wastewater districts' factors (net plant, general metered
11 customers, salaries and wages, and operating and maintenance expenses excluding
12 labor) . Those costs allocated to Agua Fria Wastewater and Mohave Wastewater
13 were then deconsolidated via the wastewater 3-factor.

14 **I. SLM - IS14: UPDATE REGULATORY EXPENSE**

15 **Q. WHAT IS ADJUSTMENT SLM-IS14 – UPDATE REGULATORY**
16 **EXPENSE?**

17 A. Adjustment SLM-IS14 is a *pro forma* adjustment that removes expenses not
18 appropriate in this account. Upon analysis of the corporate regulatory expense it
19 was determined that several entries did not belong in this account. This
20 adjustment removes those items and reallocates the remaining total to the
21 appropriate districts.

22 **Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE**
23 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
24 **TREATMENT FACILITY?**

1 A. This adjustment is allocated to each deconsolidated district using a weighted-
2 average 3-factor wastewater allocation percentage based on a combination of
3 number of customers, wastewater flows treated, and gross plant. Deconsolidated
4 districts are then aggregated for a total consolidated adjustment.

5 **J. SLM - IS15: ADJUST LEGAL EXPENSE**

6 **Q. WHAT IS ADJUSTMENT SLM-IS15 – ADJUST LEGAL EXPENSE?**

7 A. Adjustment SLM-IS15 is a *pro forma* adjustment to annualize legal expense based
8 on costs incurred for legal expenses for the three year period 2013 through 2015.
9 A three-year average of these expenses reduce fluctuations that may occur in any
10 one year.

11 **Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE**
12 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
13 **TREATMENT FACILITY?**

14 A. This adjustment is allocated to each deconsolidated district using a weighted-
15 average 3-factor wastewater allocation percentage based on a combination of
16 number of customers, wastewater flows treated, and gross plant. Deconsolidated
17 districts are then aggregated for a total consolidated adjustment.

18 **K. SLM – IS19: INTENTIONALLY LEFT BLANK**

19 **Q. WHAT IS ADJUSTMENT SLM-IS19?**

20 A. During the preparation of this rate case filing, it was determined that there was no
21 need for an Adjustment SLM-IS19. Rather than reformat all the schedules to
22 remove this adjustment, the Company retained this adjustment to maintain
23 continuity in the numbering of the income statement pro forma adjustments..

**L. SLM - IS28: RECLASS EFFLUENT FROM WATER TO
WASTEWATER**

**Q. WHAT IS ADJUSTMENT SLM-IS28 – RECLASS EFFLUENT FROM
WATER TO WASTEWATER?**

A. Adjustment SLM-IS28 is a *pro forma* adjustment to include effluent revenues in the wastewater district's revenue. During the test year, sales of effluent to customers were classified as water sales and therefore are recorded as water revenues on the Company's books. In the last Mohave Wastewater rate case, which also included the Mohave Water district, the Company proposed to reclassify the effluent sales from the water district to the wastewater district. Although not waiving any rights that EWAZ has under its Mohave Water District Certificate of Convenience and Necessity ("CC&N") or any claim that effluent sales are not subject to the Commission's jurisdiction, EWAZ proposed in that case, and is also proposing in this case, that effluent sales within the area be subject to an effluent rate tariff for the Mohave Wastewater District. EWAZ believes that this regulatory treatment will allow for more transparent rate setting for the sale of effluent within the Mohave Wastewater area. The Commission adopted the Company's proposal in Decision No. 75268 (September 8, 2015), however, the accounting for the effluent sales continued to be recorded in the Mohave Water Districts water revenue during the test year. This adjustment reclasses the effluent revenues realized in the test year from the Mohave Water District's revenues to the Mohave Wastewater District's revenue.

1 Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE
2 DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER
3 TREATMENT FACILITY?

4 A. The effluent customers reside in the Wishing Well region of Mohave Wastewater.
5 This adjustment is therefore 100% allocated to Wishing Well.

6 **M SLM - IS31: LOW INCOME PROGRAM COSTS**

7 Q. WHAT IS ADJUSTMENT SLM-IS31 – LOW INCOME PROGRAM
8 COSTS?

9 A. Adjustment SLM-IS31 is a *pro forma* adjustment to reflect the annual expense
10 associated with the funding of the proposed low income programs for wastewater
11 customers. The discount for the eligible low income customers is proposed at a
12 flat rate of \$5.00 per month for each wastewater district. This adjustment is based
13 on a proposed number of participants in each district. Please refer to the testimony
14 of Ms. Sheryl L. Hubbard for more details regarding the proposed programs.

15 Q. WHAT IS THE BASIS FOR THE *PRO FORMA* ADJUSTMENTS IN THE
16 DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER
17 TREATMENT FACILITY?

18 A. The adjustment for operating expenses was allocated to the deconsolidated
19 districts using an allocation factor based on general metered customers.
20 Deconsolidated districts are then aggregated for a total consolidated adjustment.

21 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

22 A. Yes.

Boizelle Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
TOM FORESE
BOB BURNS
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF
EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT FAIR
VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR
INCREASES/DECREASES IN ITS RATES AND
CHARGES BASED THEREON FOR UTILITY
SERVICE BY ITS AGUA FRIA, ANTHEM,
MOHAVE, SUN CITY, AND SUN CITY WEST
WASTEWATER DISTRICTS AND FOR
CONSIDERATION OF CONSOLIDATION AND
DE-CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
JON BOIZELLE
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

**DIRECT TESTIMONY
OF
JON BOIZELLE
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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1 **EXECUTIVE SUMMARY**

2 Jon Boizelle testifies that:

3 The wastewater rate case filed by EPCOR Water Arizona Inc. (“EWAZ” or
4 “Company”) requires a number of adjustments to the 2015 test-year expenses for
5 known and measurable cost increases, including adjustments for changes in expenses
6 for property taxes, bad debt, purchased power, postage, C.U.S.¹ charges, inflation,
7 and computer licensing. The addition of these pro forma expense adjustments allows
8 for the recovery of known and measurable expenses that will occur after the 2015 test
9 year.

10

¹ C.U.S. stands for “Customer Utility System” charges.

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Jon Boizelle. My business address is 2355 W. Pinnacle Peak Road, Phoenix,
4 Arizona 85027. My business phone is (623) 780-3780.

5 **Q. IN WHAT CAPACITY AND BY WHO ARE YOU EMPLOYED?**

6 A. I am employed by EPCOR Water USA ("EWUS") as a Rate Analyst.

7 **Q. PLEASE DESCRIBE YOUR PRIMARY RESPONSIBILITIES FOR THE**
8 **COMPANY.**

9 A. My primary responsibilities with EWUS are to assist in the preparation of rate
10 applications and other regulatory filings consistent with the applicable regulatory
11 agency's filing requirements in Arizona and New Mexico.

12 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND**
13 **EDUCATION.**

14 A. I joined EWUS in 2015 as a rate analyst. My professional experience includes more than
15 3 years of experience with public utility accounting and regulation; and another 3 years as
16 an auditor of commercial and manufacturing companies, employee retirement plans, and
17 casinos.

18 My utility experience in the last 3 years has primarily been in the accounting department
19 preparing financial statements, tracking project costs, filing compliance reports, and
20 performing financial analysis.

21 I have a Masters of Accountancy from the University of Idaho and a Bachelor of Science
22 in Accounting from Brigham Young University - Idaho.

23 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

24 A. No.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. EPCOR Water Arizona Inc. seeks an increase in rates for each wastewater district and a consolidation of the rates and fees of its Agua Fria Wastewater, Anthem Wastewater, Mohave Wastewater, Sun City Wastewater, and Sun City West Wastewater Districts. My testimony provides explanations for certain pro-forma adjustments to expenses affecting the revenue requirement for each wastewater district on a consolidated basis, a stand-alone basis, and a deconsolidated basis by wastewater treatment facility. The deconsolidation by wastewater facility results in seven districts which are as follows: 1) Verrado Wastewater District; 2) Russell Ranch Wastewater District; 3) Anthem Wastewater District; 4) Wishing Well Wastewater District; 5) Arizona Gateway Wastewater District; 6) Sun City Wastewater District; and the 7) Northwest Valley Wastewater District (a combination of the portion of the Agua Fria district comprised of Corte Bella, Cross River, Rancho Silverado, Rio Sierra, Dos Rios, Rancho Cabrillo, and Coldwater Ranch in what is referred to as the Northeast Agua Fria area and Sun City West Wastewater District). In addition, my testimony requests and provides justification for two proposed adjustor mechanisms.

Q. WHICH ADJUSTMENTS WILL YOU ADDRESS IN YOUR TESTIMONY?

A. I am sponsoring the following pro forma expense adjustments:

JPB IS-2	Conforming Property Tax Adjustment
JPB IS-5	Bad Debt Expense Adjustment
JPB IS-9	Purchased Power Adjustment
JPB IS-11	Postage Increase Adjustment
JPB IS-12	Customer Care and Billing Adjustment

1	JPB IS-29	CPI Adjustment
2	JPB IS-30	Cityworks License Fees Adjustment
3	JPB-IS33	Customer Communication & Education
4	JPB-IS35	Anthem Power Cost (<i>applicable to Anthem Wastewater only</i>)

5

6 **Q. WHICH ADJUSTOR MECHANISMS WILL YOU EXPLAIN?**

7 A. My testimony will address the following proposals for adjustor mechanisms for the
8 consolidated or stand-alone wastewater districts:

9 Purchased Power Adjustment Mechanism

10 Property Tax Adjustment Mechanism

11 **Q. WERE EACH OF THESE ADJUSTMENTS CALCULATED BY YOU OR**
12 **UNDER YOUR SUPERVISION?**

13 A. Yes.

14

1 **III. ADJUSTMENTS**

2 **A CONFORMING PROPERTY TAX ADJUSTMENT (JPB IS-2)**

3 **Q. WHAT IS THE PURPOSE OF THE CONFORMING PROPERTY TAX**
4 **ADJUSTMENT?**

5 A. The property tax adjustment is designed to adjust the 2015 property tax expense to allow
6 recovery of property taxes based on proposed changes to revenues as well as known
7 changes in assessment rates and tax rates.

8 **Q. WHY IS THIS ADJUSTMENT NECESSARY?**

9 A. EWAZ's property taxes will change based on the revenue increase that is approved as a
10 result of this rate case application and changes to taxation ratios as determined by state
11 and local authorities. These changes should be included as an adjustment to 2015 test
12 year property tax expense as changes to these taxes are known and measurable.

13 Property taxes are based on two times the average of the last 3 years of revenue plus 10%
14 of Construction Work in Progress ("CWIP"), less the book value of transportation
15 equipment to determine a full cash value. An assessment ratio of eighteen percent² is
16 then applied to the full cash value to determine the assessed value, upon which the
17 property tax rate is applied to determine property taxes.

18 The proposed revenues, as adjusted in this case, will alter the full cash value utilized in
19 property tax assessments and ultimately the taxes paid by EWAZ. Coupled with known
20 changes to the property tax assessment ratios and rates, property taxes to be paid will
21 increase in the period that the rates that result from this proceeding are in effect. Failure
22 to include these changes would preclude EWAZ from recovering the cost of these
23 increased expenses.

24 **Q. HOW IS THE PROPERTY TAX RATE DETERMINED FOR EACH DISTRICT?**

² A.R.S. § 42-15001.

A. A weighted average has been calculated for each district based on the most recent property tax information available. The weighted average is based on multiple composite rates calculated individually for each parcel by taking 2015 property taxes and dividing by the 2015 assessed value. The weighted average is calculated by district, using an average of the composite rates weighted by the portion each parcel makes up of the total district's 2015 assessed value.

When calculating consolidated districts for which specific tax parcels have not been assigned, a composite rate is utilized as no weighted average can be calculated. The composite rate is calculated using total tax combined for all individual districts divided by the total combined assessed value from each of the individual districts.

Q. WHAT EFFECT DOES THIS ADJUSTMENT HAVE ON EXPENSES?

A. The 2015 test year property tax expense is adjusted for each district, creating a combined increase to property tax expense of \$61,002, as shown in the following table:

<u>District</u>	<u>2015 Property Tax Expense</u>	<u>Adjusted Property Tax Expense</u>	<u>Proposed Increase/ (Decrease)</u>
Agua Fria Wastewater	\$ 241,267	\$ 247,482	\$ 6,215
Anthem Wastewater	\$ 287,317	\$ 301,722	\$ 14,404
Sun City Wastewater	\$ 384,306	\$ 403,732	\$ 19,427
Sun City West Wastewater	\$ 381,829	\$ 417,584	\$ 35,755
Mohave Wastewater	\$ 68,930	\$ 72,061	\$ 3,131
Consolidated Total	\$ 1,363,649	\$ 1,442,581	\$ 78,932
Northwest Valley Wastewater	\$ 508,730	\$ 539,978	\$ 31,247
Verrado Wastewater	\$ 107,135	\$ 115,013	\$ 7,878
Russell Ranch Wastewater	\$ 7,051	\$ 9,918	\$ 2,867
Anthem Wastewater	\$ 287,317	\$ 301,722	\$ 14,404
Sun City Wastewater	\$ 384,306	\$ 403,732	\$ 19,427
Wishing Well Wastewater	\$ 67,903	\$ 69,032	\$ 1,129
Arizona Gateway Wastewater	\$ 1,019	\$ 3,092	\$ 2,073

1 It should be noted that due to allocations and rounding, the differences between the
2 consolidated districts totals and the deconsolidated districts totals are immaterial.

3 **Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENT IN THE**
4 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
5 **TREATMENT FACILITY?**

6 A. This adjustment is calculated based on the three-year average of adjusted revenues
7 combined with 10% of CWIP. The revenues and CWIP utilized in this calculation are
8 specifically calculated for each deconsolidated district and then aggregated for a total
9 consolidated district amount. The consolidated district total is allocated using a weighted-
10 average 3-factor wastewater allocation percentage based on a combination of number of
11 customers, wastewater flows treated, and gross plant. Property tax rates utilized pertain to
12 the specific deconsolidated area.

13
14 **B BAD DEBT EXPENSE ADJUSTMENT (JPB IS-5)**

15 **Q. WHY IS AN ADJUSTMENT TO BAD DEBT EXPENSE NECESSARY?**

16 A. The 2015 test year bad debt expense was calculated based on total Arizona accounts
17 receivable which was allocated to the respective districts, meaning the expense does not
18 directly correlate with the physical location of the account premises for which the
19 account balance was written-off. Included in this calculation are recoveries of write-offs
20 originally thought to be uncollectible from prior years and adjustments to account
21 receivable balances. In order to accurately reflect the impact of bad debt expense on 2015
22 expenses, the allocation and adjustments from prior years need to be removed and
23 replaced with actual activity determined to be uncollectible and written-off in 2015 for
24 each district.
25

1 **Q. HOW WAS THE AMOUNT OF ADJUSTMENT DETERMINED FOR EACH**
2 **DISTRICT?**

3 A. Details for the amount recorded for bad debt expense as reflected in the Company's
4 financial statements by district was obtained and traced to the Company's financial
5 statements. Allocated amounts were identified and totaled for removal from recorded
6 bad debt expense. Details for bad debt write-offs by customer account were acquired for
7 each district from the Company's third-party billing provider and analyzed to identify
8 actual account write-offs (net of recoveries) pertaining to each month of the 2015 test
9 year. The difference between the unadjusted expense amount as allocated and the actual
10 write-offs by district was computed and included as an adjustment to the test year
11 expense for each district.

12 **Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENT IN THE**
13 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
14 **TREATMENT FACILITY?**

15 A. The actual bad debt write-offs utilized in this calculation are specifically identified for
16 each deconsolidated district. Unadjusted 2015 Bad Debt expense is calculated using a
17 weighted-average 3-factor wastewater allocation percentage based on a combination of
18 number of customers, wastewater flows treated, and gross plant.

19
20 **C PURCHASED POWER ADJUSTMENT (JPB IS-9)**

21 **Q. WHY IS AN ADJUSTMENT TO PURCHASED POWER EXPENSE PROPOSED?**

22 A. The unadjusted purchased power expense in the test year represents the costs in 2015 of
23 purchasing the required electricity to conduct operations. With the exception of its
24 Mohave district, EWAZ has consistently experienced annual increases in electric rates.
25 In 2016, EWAZ's primary electric provider, Arizona Public Service ("APS"), notified the

1 public that it intends to initiate a rate case to increase rates. Full details of APS' rate
2 increase will become available and will be updated as this rate filing proceeds.

3 For purposes of the pro forma adjustment included in the Company's direct case
4 presentation, the power cost increase has been estimated based on 2015 electric usage
5 and the typical annual bill percentage increase from 2014 to 2015 as provided by APS in
6 their budget guidance for FY 2015 based on EWAZ's level of usage. When APS releases
7 the proposed rate increase, if necessary, the Company will update the original estimate in
8 its rebuttal testimony. Inclusion of known and measurable increases to electric power
9 costs in this manner helps to reduce rate shock in future rate cases and reduces regulatory
10 lag.

11
12 **Q. HOW WAS THE HISTORICAL PURCHASED POWER RATE INCREASE**
13 **DETERMINED?**

14 **A.** In March of 2015, APS provided annual guidance on how electric costs will change by
15 rate schedule. Included in their guidance was the increase for the fiscal year ended
16 September 30, 2015 for Small Business Customers of 2.29%. As the majority of EWAZ's
17 accounts with APS are Small Business Customer accounts, the increase of 2.29% should
18 be added to the electric power expense for all districts in this rate case except Mohave.

19 **Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENT IN THE**
20 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
21 **TREATMENT FACILITY?**

22 **A.** The purchased power calculation is specifically allocated to each deconsolidated district
23 using a weighted-average 3-factor wastewater allocation percentage based on a
24 combination of number of customers, wastewater flows treated, and gross plant.

Deconsolidated districts are then aggregated for a total consolidated purchased power adjustment.

D POSTAGE INCREASE ADJUSTMENT (JPB IS-11)

Q. WHY IS AN ADJUSTMENT PROPOSED FOR POSTAGE EXPENSES?

A. Postage expenses have seen historical increases over the last 3 years. Each year EWAZ incurs significant expense mailing bills to customers. To account for the increase in postage expenses on an ongoing basis, the Company proposes an increase to the postage expenses in operating costs included in test year expenses to ensure recovery of the anticipated increase in that expense.

Q. HOW HAS THE COMPANY CALCULATED THE ADJUSTMENT?

A. Postage rates for the last three years have been obtained for each of the mailing rates that EWAZ uses when sending bills to customers: 5-Digit, 3-Digit, Automated Area Distribution Center ("AADC"), Mixed AADC, and Single Piece. Each mailing rate is explained in the table below as defined by the United States Postal Service website under "Postal Terms."

5-Digit	A presort level in which all pieces in the bundle or container are addressed for delivery within the same 5-digit ZIP Code area.
3-Digit	A presort level in which all pieces in the bundle or container are addressed for delivery within the same first three digits of a 5-digit ZIP Code area (i.e., ZIP Code prefix).
AADC	A presort level in which all pieces in the bundle or container are addressed for delivery in the service area of the same automated area distribution center.

Mixed AADC	A presort level in which all pieces in the bundle or container are addressed for delivery within the service areas of more than one automated area distribution center.
Single-Piece (First Class)	A postage price available for individual, single-piece First-Class Mail. This type of price contrasts with prices available for bulk mail and presorted mail that require a minimum number of pieces and must meet other requirements such as sortation to qualify for the lower prices.

Based on these rates, an average cost per piece was calculated and compared with other years to determine the annual increase. Given an increase in 2014 and 2015 of 6.27% and 1.61%, respectively, an average annual increase of 3.9% has been applied to the 2015 test-year postage expense for each district.

Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENT IN THE DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER TREATMENT FACILITY?

A. The 2015 test year postage expense is allocated to each deconsolidated district using a weighted-average 3-factor wastewater allocation percentage based on a combination of number of customers, wastewater flows treated, and gross plant. Deconsolidated districts are then aggregated for a total consolidated purchased power adjustment.

E CUSTOMER CARE AND BILLING ADJUSTMENT (JPB IS-12)

Q. WHAT ARE CUSTOMER CARE AND BILLING CHARGES?

A. EWAZ utilizes a third party billing company, Vertex, to bill its customers. C.U.S. charges are the costs charged to EWAZ for billing customers, operation of the call

1 centers, and work order management. EWAZ is charged on a cost per month, per
2 customer basis.

3 **Q. WHY IS AN ADJUSTMENT NECESSARY?**

4 A. Prices for C.U.S charges have historically changed from year-to-year for inflation based
5 on the Consumer Price Index (CPI). An adjustment is required to accurately account for
6 the anticipated increase due to inflation.

7 **Q. HOW WAS THE ADJUSTMENT CALCULATED?**

8 A. The Bureau of Labor Statistics tracks costs and calculates the Consumer Price Index
9 (CPI) for multiple geographic areas and product categories. EWAZ obtained the CPI for
10 all Urban Consumers for the Phoenix-Mesa³ area from 2012 to 2015 and computed an
11 average annual CPI increase of 1%. This rate was applied to otherwise unadjusted
12 expenses for two years to determine known and measureable future expense levels.

13 **Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENT IN THE**
14 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
15 **TREATMENT FACILITY?**

16 A. The 2015 test year C.U.S expense is calculated to allocate the expense to each
17 deconsolidated district using a weighted-average 3-factor wastewater allocation
18 percentage based on a combination of number of customers, wastewater flows treated and
19 gross plant. Deconsolidated districts are then aggregated for a total consolidated
20 purchased power adjustment.

21 **F CPI ADJUSTMENT (JPB IS-29)**

22 **Q. WHY IS AN ADJUSTMENT FOR PRICING INCREASES JUSTIFIED?**

³ Bureau of Labor Statistics

http://data.bls.gov/pdq/SurveyOutputServlet?data_tool=dropmap&series_id=CUUSA429SA0,CWUSA429SA0

1 A. Each year, inflation causes prices of goods and services to increase. The pricing of the
2 goods and services that created the 2015 test year expenses will be higher in 2016 and
3 again in 2017. Failure to account for inflation causes unnecessary regulatory lag.

4 **Q. WHY ARE ONLY SOME EXPENSE ACCOUNTS INCLUDED IN THIS**
5 **ADJUSTMENT?**

6 A. EWAZ recognizes that many of the income statement accounts already have adjustments
7 designed to adjust the 2015 test year expenses to known and measureable future cost
8 levels. To further adjust these accounts would inordinately increase expenses. Only
9 2015 expense accounts with no proposed pro forma adjustments have been included in
10 this pro forma adjustment to adjust expenses for inflation.

11 **Q. HOW IS THE PRICING INCREASE CALCULATED?**

12 A. The Bureau of Labor Statistics tracks costs and calculates the Consumer Price Index
13 (CPI) for multiple geographic areas and product categories. EWAZ obtained the CPI for
14 all Urban Consumers for the Phoenix-Mesa⁴ area from 2012 to 2015 and computed an
15 average annual CPI increase of 1%. This rate was applied to otherwise unadjusted
16 expenses for two years to determine known and measureable future expense levels.

17 **Q. WHY WERE TWO YEARS OF CPI INCREASES CALCULATED?**

18 A. This rate case application will be filed in early 2016 based on a 2015 calendar-year test
19 year. Based on historical experience, EWAZ anticipates that due to the length of time
20 required to process a rate change request by the Commission, any implementation of
21 approved rate changes will occur no sooner than 2017. Prices at implementation would
22 have increased over the course of two years from the 2015 test year level when these
23 rates are expected to be in effect.

⁴ Bureau of Labor Statistics

http://data.bls.gov/pdq/SurveyOutputServlet?data_tool=dropmap&series_id=CUUSA429SA0,CWUSA429SA0

1 **Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENT IN THE**
2 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
3 **TREATMENT FACILITY?**

4 A. The 2015 test year CPI adjustment to expense is calculated to allocate the expense to
5 each deconsolidated district using a weighted-average 3-factor wastewater allocation
6 percentage based on a combination of number of customers, wastewater flows treated,
7 and gross plant. Deconsolidated districts are then aggregated for a total consolidated
8 purchased power adjustment.

9 **G CITYWORKS LICENSE FEES ADJUSTMENT (JPB IS-30)**

10 **Q. WHY IS AN ADJUSTMENT TO LICENSE FEES REQUIRED?**

11 A. EWUS, the parent of EWAZ, has identified the need to implement a computerized
12 maintenance management system ("CMMS") designed to manage its distribution and
13 collection system assets. Currently, EWUS utilizes a combination of paper records,
14 spreadsheets, and maps for asset management which has been determined to be
15 inadequate for effectively managing project costs and documentation. Implementing the
16 CMMS system will result in increased licensing costs with our GIS vendor, Cityworks, in
17 2016 and 2017, to secure the necessary licenses and access rights to implement the
18 integrated CMMS system. The 2015 licensing expenses do not include the increase
19 licensing costs EWAZ will incur and should be adjusted to reflect these costs.

20 **Q. HOW MUCH WILL THE INCREASED LICENSING COST?**

21 A. The increased licensing costs will result in expenditures of \$50,000. As these costs will
22 benefit all districts, these costs have been allocated to all districts. Only the license fees
23 allocated to the wastewater districts have been included in this case. All other project
24 costs are capital in nature and are included in post-test-year rate base and discussed in the
25 direct testimony of Mr. Andrew Brown.

1 **Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENT IN THE**
2 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
3 **TREATMENT FACILITY?**

4 A. The proposed 2015 test year Cityworks License Fees were allocated first to Arizona
5 using the 4-factor of net plant in service, customer count, wages, and direct operations
6 and maintenance to determine the Arizona portion of the Cityworks License Fees from
7 EWUS. The Arizona portion is allocated to the stand-alone districts using the 4-factor
8 allocation methodology. A further sub-district allocation is made using a weighted-
9 average 3-factor wastewater allocation percentage based on a combination of number of
10 customers, wastewater flows treated, and gross plant. Deconsolidated districts are then
11 aggregated for a total consolidated Cityworks License Fees adjustment.

12
13 **H CUSTOMER COMMUNICATION AND EDUCATION (JPB IS-33)**

14 **Q. WHY IS AN ADJUSTMENT FOR CUSTOMER COMMUNICATION AND**
15 **EDUCATION INCLUDED?**

16 A. EWAZ has determined it will incur additional expenditures in communicating with
17 customers. These expenditures come in two parts: 1) customer education in relation to
18 water and wastewater utilities in Arizona and 2) additional fees to correct limitations in
19 the billing system to target communications to specific customer groups.

20 EWAZ continues efforts to educate, instruct, and inform customers on the value of water
21 and wastewater and to encourage conservation. To this end, additional expenditures will
22 be made to produce print and video resources for our customers.

23 EWAZ has identified the need to communicate meaningful and important information
24 directly to affected customers through bill text messages and inserts. The current billing
25 system has limitations on the ability to target specific customers for water only or

wastewater only messaging. The Company's third party billing provider, Vertex, will be paid additional funds to develop this functionality.

Q. HOW WERE THESE COSTS ALLOCATED TO WASTEWATER DISTRICTS?

A. The total costs of \$62,000 were allocated using a 4-factor of net plant, metered customers, salaries, and direct operations and maintenance to each of the wastewater districts included in this rate filing.

Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENT IN THE DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER TREATMENT FACILITY?

A. The proposed 2015 test year Customer Communication and Education expenses were allocated first to Arizona using the 4-Factor of net plant in service, customer count, wages, and direct operations and maintenance to determine the Arizona portion of the Cityworks License Fees from EWUS. The Arizona portion is allocated to the stand-alone districts using the 4-factor allocation methodology. A further sub-district allocation is made using a weighted-average 3-factor wastewater allocation percentage based on a combination of number of customers, wastewater flows treated, and gross plant. Deconsolidated districts are then aggregated for a total consolidated customer communication and education adjustment.

I ANTHEM POWER COST (JPB IS-35)

Q. WHY IS AN ADJUSTMENT FOR ANTHEM POWER EXPENSES PROPOSED?

A. As part of an internal review, EWAZ identified that minor numbers of electric invoices from APS were not properly coded between the Anthem water and wastewater districts. Although small in dollar value relative to the case, an adjustment is included to ensure that accurate costs are charged to the appropriate district.

1 **Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENT IN THE**
2 **DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER**
3 **TREATMENT FACILITY?**

4 A. This adjustment is specific to the Anthem Wastewater district and requires no further
5 deconsolidation.
6

7 **IV. ADJUSTOR MECHANISMS**

8 **Q. PLEASE IDENTIFY THE ADJUSTOR MECHANISMS THAT THE COMPANY**
9 **IS REQUESTING AUTHORIZATION TO IMPLEMENT IN THIS**
10 **PROCEEDING.**

11 A. The Company is requesting a Power Cost Adjustor Mechanism ("PCAM") for future
12 changes in its power expenses and a Property Tax Adjustor Mechanism ("PTAM") for
13 future changes in its property taxes.

14 **Q. HAS THE COMMISSION ADDRESSED REQUESTS IN THE PAST FOR ANY**
15 **OF THE REQUESTED ADJUSTOR MECHANISMS THE COMPANY IS**
16 **SEEKING IN THIS RATE CASE?**

17 A. Yes. A similar PCAM was approved as part of EWAZ's 2013 rate case for Mohave
18 Wastewater; Decision No. 75268 (issued September 8, 2015). Only the unit of measure
19 component of the associated surcharge differs from the previously-approved mechanism;
20 gallons billed for water customers would not be applicable to wastewater customers'
21 bills.

22 The PTAM has never been brought before the Commission by EWAZ.
23
24

A POWER COST ADJUSTOR MECHANISM

**Q. PLEASE DISCUSS THE BENEFITS OF A POWER COST ADJUSTMENT
MECHANISM FOR CUSTOMERS AND THE COMPANY.**

A. The Commission long ago recognized the benefits of adjustor mechanisms such as the proposed PCAM as noted in the following decision:

“If purchased power and/or water costs are trending upward, gradually recognizing those increasing cost through incremental rate adjustments sends a more appropriate price signal to users and receives greater customer acceptance than the less frequent, but far larger, rate increases... If purchased power and/or water costs are trending downward, Staff’s proposal would delay the refund owing to customers.” Decision No. 58120 (December 23, 1992, p. 30).

The Commission and the Company share a concern over rate shock. In fact, the Commission in recent years has requested its staff to investigate ways to minimize the impact of a needed rate increase on customers’ bills. The best way to send appropriate price signals to customers is to enable companies to pass through cost increases and decreases in a more timely fashion. With the proper determination of the base cost of power and a mechanism that includes actual true-ups, an adjustor mechanism can accomplish that goal without harm to customers.

Power Costs make up a sizable portion of EWAZ’s operations and maintenance (“O&M”) expenses. In the 2015 test year, power costs made up 9% of the consolidated O&M expenses. In the deconsolidated districts, these range from a low of 0.40% in the Sun City Wastewater District (which is a gravity driven system) to 17.1% in the Anthem Wastewater District.

Q. HOW DOES EWAZ PROPOSE TO ADMINISTER A PCAM?

1 A. The PCAM allows the Company to pass through increases or decreases in purchased
2 power costs that result from a rate change for any ACC-regulated electric service
3 provider supplying retail service to the Company to its customers.

4 The Company proposes to file an analysis of the actual impact on the Company's
5 purchased power costs of Commission-authorized rate changes in the approved tariffs of
6 any ACC-regulated electric service provider supplying retail service to the Company. The
7 first report would reflect power costs for a twelve month period commencing January 1st
8 of the year following issuance of a decision in this case. This report will be filed within
9 60 days of the end of the reporting period, with an effective date 30 days thereafter. Any
10 resulting surcharge or credit would be allocated between the residential and non-
11 residential classes based on their contribution to the revenue requirement in this case and
12 would be spread over a twelve month period.

13 **B PROPERTY TAX ADJUSTOR MECHANISM**

14 **Q. ARE YOU ALSO REQUESTING AN ADJUSTOR MECHANISM FOR**
15 **PROPERTY TAXES?**

16 A. Yes. EWAZ is seeking a PTAM to account for steadily increasing property tax costs.
17 PTAM would allow for more timely recovery of these costs and provide more immediate
18 relief to customers in the event these costs decrease. As discussed with the PCAM
19 above, the PTAM would also help to reduce rate shock.

20 Property Taxes make up a sizable portion of EWAZ's operating expenses. In the 2015
21 test year, property taxes made up 5% of the existing stand-alone districts' operating
22 expenses and a similar percentage of the consolidated operating expenses as well.

23 **Q. HOW DOES EWAZ PROPOSE TO ADMINISTER A PTAM?**

24 A. EWAZ proposes that the difference between current and prior composite rates by parcel
25 be applied to the 2015 assessed parcel value and summarized. The sum total of any
26 increases or decreases due to changes in composite rates can then be passed on to

1 residential and non-residential customers in 12 equal amounts, based on the percentage of
2 revenue allocated to the residential class to total retail revenue and non-residential classes
3 to the total retail revenue billable as a monthly surcharge or surcredit.

4 The adjustment to PTAM would be calculated annually with the release of the current
5 year's property tax bills each September and submitted to the Commission staff for
6 review. The adjustment to customer bills would be effective at the beginning of the
7 following year.

8 **Q. HAVE YOU PREPARED DRAFT PLANS OF ADMINISTRATION FOR THE**
9 **PROPOSED POWER COST ADJUSTOR MECHANISM AND THE PROPOSED**
10 **PROPERTY TAX ADJUSTOR MECHANISM?**

11 A. Yes, I have. The Plan of Administration ("POA") for the proposed Power Cost Adjustor
12 Mechanism is attached to my direct testimony as Exhibit JPB-1 and the POA for the
13 Property Tax Adjustor Mechanism is attached as Exhibit JPB-2.

14 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

15 A. Yes.

EXHIBIT JPB-1

Arizona Corporation Commission

EPCOR Water Arizona Inc.

Docket No. WS-01303A-16-XXXX Power Cost Adjustor Mechanism Plan of Administration

**EPCOR Water Arizona Inc.
Power Cost Adjustor Mechanism
Plan of Administration**

This Plan of Administration ("Plan") relates to the administration of EPCOR Water Arizona Inc.'s ("EWAZ" or the "Company") Power Cost Adjustor Mechanism ("Mechanism") for its proposed [Insert District Name] Wastewater District. The purpose of the Plan is to describe how EWAZ will administer the Mechanism approved by the Arizona Corporation Commission in Docket No. WS-01303A-16-XXXX. This plan is being filed as required in Decision Number [Insert Decision Number] issued [Insert Date of Decision].

Arizona Corporation Commission

EPCOR Water Arizona Inc.

Docket No. WS-01303A-16-XXXX

Power Cost Adjustor Mechanism Plan of Administration

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PROPOSED

Arizona Corporation Commission

EPCOR Water Arizona Inc.

Docket No. WS-01303A-16-XXXX Power Cost Adjustor Mechanism Plan of Administration

I. Overview

EPCOR Water Arizona Inc. ("EWAZ" or "Company") is an Arizona public service corporation engaged in providing water and wastewater utility services in several different parts of Arizona pursuant to a Certificate of Convenience and Necessity granted by the Arizona Corporation Commission.

II. General Description

This document is the Plan of Administration ("POA") for the Power Cost Adjustment Mechanism ("PCAM") approved for EWAZ by the Arizona Corporation Commission ("ACC" or "Commission") in Decision No. [Insert Decision Number] issued [Insert date of Decision]. The PCAM allows the Company to pass through increases or decreases in purchased power costs that result from a rate change for any ACC-regulated electric service provider supplying retail service to the Company to its customers.

III. PCAM Related Filings

- A. The Company shall file with docket control an analysis of the actual impact on the Company's purchased power costs of Commission-authorized rate changes in the approved tariffs for any ACC-regulated electric service provider supplying retail service to the Company. The first report will be based on the period [Insert Start Date] through [Insert date 12 months after Start Date] to be consistent with the Test Year approved in the Decision. This report will be filed within 60 days of the end of the reporting period, [Insert date 60 days after end of Reporting Period], and then annually thereafter. The adjustor will be effective 30 days after the annual filing, [Insert date 90 days after the Reporting Period], and then annually thereafter.
- B. EWAZ will provide the ACC with spreadsheets detailing exactly how the Company's purchased power expenses were calculated in the time period prior to a change in the rate that EWAZ must pay for purchased power. These calculations will include basic service

Arizona Corporation Commission

EPCOR Water Arizona Inc.

Docket No. WS-01303A-16-XXXX Power Cost Adjustor Mechanism Plan of Administration

charges and rate and volume figures. That is, EWAZ will break down its total purchased power bill into the amount due to fixed fees, volume of electricity used, adjustors, and the rates paid per unit of electricity. For the period following the rate change, EPCOR will provide the same information, and then compare the two periods, isolating any change in purchased power cost that is due exclusively to a rate change. The specific intent is to show exactly how much of any increase or decrease is due to changes in rates beyond the Company's control and how much is due to a change in the amount of power that the Company consumes. EWAZ will only recover increases or refund decreases that are due to changes in rates.

The actual amounts recovered from or refunded to customers will be separately identified by EWAZ and recorded in a balancing account. As part of each annual filing, the Company will perform a reconciliation for the prior reporting period comparing the amounts recovered from / refunded to customers to the amount of increase / decrease in power expenses due to changes in rates for that same period resulting in either an under / (over) recovery. This true-up amount will be included in the next annual calculation.

- C. All revised schedules filed with the Commission pursuant to the provisions of this PCAM will be accompanied by documentation prepared by EWAZ in a format approved by the Utilities Division Staff of the Commission and will contain sufficient detail to enable the Commission to verify the accuracy of EWAZ's calculations.
- D. The surcharges will not become effective until approved by the Commission.
- E. The Company will file a report annually with the Commission, detailing its purchased power costs and any conservation or power-shifting measures utilized by the Company.
- F. The Company shall provide notice (in a form acceptable to Utilities Division Staff) of the rate increases to customers.

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EPCOR Water Arizona Inc.

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IV. Application to Wastewater Customers

- A. The calculated increases or decreases in rates for the [Insert District name] Wastewater District must amount to at least \$.01 per wastewater customer per month, after rounding the calculation, before an adjustment can be made. If the calculation results in a positive or negative change of less than \$.01 per wastewater customer per month, the increase in electric power expenses paid will be carried over to the next reporting period. In the event of a carry over, any electric power expenses adjustment billed to customers will be subject to true-up.
- B. See Example attached as Exhibit 1 for a hypothetical calculation consistent with the proposed methodology.

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EPCOR Water Arizona Inc.

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EXHIBIT 1**Example (numbers are for illustrative purposes only):**

Test Year		Current Year	
Purchased Power Rate	\$0.0800	Purchased Power Rate	\$0.1000
Kilowatt Hours Used	1,250,000	Kilowatt Hours Used	1,250,000
Purchased Power Expense	\$100,000	Purchased Power Expense	\$125,000

Pass Through Calculation

- | | |
|---|-----------|
| 1. Current Year Purchased Power Example | \$125,000 |
| 2. Test Year Purchased Power Expense | \$100,000 |
| 3. Increase in Purchased Power Expense Due to Rate Increase | \$25,000 |

Basis of Allocation of Increase / Decrease to Residential and Non-Residential Customer Class:

- | | |
|---|------|
| 4. % of Revenue Requirement assigned to Residential Class (From Schedule H-1) | 89% |
| 5. % of Revenue Requirement assigned to Non-Residential Class (From Schedule H-1) | 11% |
| 6. Total | 100% |

Allocation of Increase / Decrease to Residential and Non-Residential Customer Class:

- | | |
|---|----------|
| 7. Increase / Decrease Allocated to Residential Class (Ln 3 X Ln 4) | \$22,250 |
| 8. Increase / Decrease Allocated to Non-Residential Class (Ln 3 X Ln 4) | 2,750 |
| 9. Total Increase in Purchased Power Expense Due to Rate Increase (Ln 7 + Ln 8) | \$25,000 |

Customer Count Reporting Period:

- | | |
|--|--------|
| 10. Number of Wastewater Residential Customers | 65,160 |
| 11. Number of Commercial Wastewater Customers | 1,226 |
| 12. Total | 66,385 |

Calculation of Surcharge / Surcredit:

- | | |
|--|---------------|
| 13. Annual Increase Per Residential Customer (Ln 7 ÷ Ln 10) | \$0.34 |
| 14. Increase Per Residential Customer Per Month (Ln 13 ÷ 12) | \$0.0285 |
| 15. Surcharge / Surcredit Per <u>Residential Customer</u> Per Month (Ln 14 Rounded) | \$0.21 |
| 16. Annual Increase Per Non-Residential Customer (Ln 8 ÷ Ln 11) | \$2.24 |
| 17. Increase Per Non-Residential Customer Per Month (Ln 16 ÷ 12) | \$0.1869 |
| 18. Surcharge / Surcredit Per <u>Non-Residential Customer</u> Per Month (Ln 17 Rounded) | \$0.19 |

EXHIBIT JPB-2

Arizona Corporation Commission

EPCOR Water Arizona Inc.

Docket No. WS-01303A-16-XXXX Property Tax Adjustor Mechanism Plan of Administration

EPCOR Water Arizona Inc.
Property Taxes Adjustor Mechanism
Plan of Administration

This Plan of Administration (“Plan”) relates to the administration of EPCOR Water Arizona Inc.’s (“EWAZ” or the “Company”) Property Tax Adjustor Mechanism (“Mechanism”) for its proposed [Insert District Name] Wastewater District. The purpose of the Plan is to describe how EWAZ will administer the Mechanism as approved by the Arizona Corporation Commission in Docket No. WA-01303A-16-XXXX. This plan is being filed as required in Decision Number [Insert Decision Number] issued [Insert date of Decision].

EPCOR Water Arizona Inc.

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Arizona Corporation Commission

EPCOR Water Arizona Inc.

Docket No. WS-01303A-16-XXXX Property Tax Adjustor Mechanism Plan of Administration

I. Overview

EPCOR Water Arizona Inc. (“EWAZ” or “Company”) is an Arizona public service corporation engaged in providing water and wastewater utility service in several different parts of Arizona pursuant to a Certificate of Convenience and Necessity granted by the Arizona Corporation Commission.

II. General Description

This document is the Plan of Administration (“POA”) for the Property Tax Adjustment Mechanism (“PTAM”) approved for EWAZ by the Arizona Corporation Commission (“ACC” or “Commission”) in Decision No. [Insert Decision Number] issued [Insert date of Decision]. The PTAM allows the Company to pass through to its customers the increases or decreases in property tax expenses that result from changes to the assessment ratio or property tax rate. Pass through costs will be divided equally between residential and non-residential customer classes to collect the total increase over the course of 12 months.

III. PTAM Related Filings

- A. The Company shall file with docket control an analysis of the actual impact on the Company’s property tax expenses. The first report will be based on the period [Insert Start Date] through [Insert date 12 months after Start Date] to be consistent with the Test Year approved in the Decision. This report will be filed within 60 days of the end of the reporting period, [Insert date 60 days after end of Reporting Period], and then annually thereafter. The adjustor will be effective 30 days after the annual filing, [Insert date 90 days after the Reporting Period], and then annually thereafter.
- B. EWAZ will provide the ACC with spreadsheets detailing exactly how EWAZ’s property tax expenses were calculated by parcel in the 2015 test year. These calculations will include full cash value, assessment ratio, and tax rates by parcel. For the period following the property tax rate change, EWAZ will provide the same information, and then compare the two periods, isolating any change in property taxes that are due exclusively

Arizona Corporation Commission

EPCOR Water Arizona Inc.

Docket No. WS-01303A-16-XXXX Property Tax Adjustor Mechanism Plan of Administration

to assessment or tax rate changes. The specific intent is to show exactly how much of any increase or decrease is due to changes in assessment ratios and property tax rates beyond EWAZ's control. EWAZ will only recover increases or refund decreases that are due to changes in assessment ratios or tax rates.

The actual amounts recovered from or refunded to customers will be separately identified by EWAZ and recorded in a balancing account. As part of each annual filing the Company will perform a reconciliation for the prior reporting period comparing the amounts recovered from / refunded to customers to the amount of increases / decreases in property tax expense due to changes in assessment ratios or tax rates for that same period resulting in either an under / (over) recovery. This true-up amount will be included in the next annual calculation.

- C. All revised schedules filed with the Commission pursuant to the provisions of this PTAM will be accompanied by documentation prepared by EWAZ in a format approved by the Utilities Division Staff of the Commission and will contain sufficient detail to enable the Commission to verify the accuracy of EWAZ's calculations.
- D. The surcharges will not become effective until approved by the Commission.
- E. The Company will file a report annually with the Commission, detailing its property tax costs.
- F. The Company shall provide notice (in a form acceptable to the Utilities Division Staff) of the rate changes to customers.

IV. Application to Wastewater Customers

- A. The calculated increases or decreased in rates for the [Insert District name] Wastewater District must amount to at least \$.01 per wastewater customer per month, after rounding

Arizona Corporation Commission

EPCOR Water Arizona Inc.

Docket No. WS-01303A-16-XXXX Property Tax Adjustor Mechanism Plan of Administration

the calculation, before an adjustment can be made. If the calculation results in a positive or negative value change of less than \$.01 per customer per month, the amount of increased / decreased property tax paid will be carried over to the next reporting period. In the event of a carry over, any property tax adjustment amount charged to customers will be subject to true-up.

- B. See Example attached as Exhibit 1 for a hypothetical calculation consistent with the proposed methodology.

Arizona Corporation Commission

EPCOR Water Arizona Inc.

Docket No. WS-01303A-16-XXXX Property Tax Adjustor Mechanism Plan of Administration

EXHIBIT 1**Example (numbers are for illustrative purposes only):**

Test Year			Current Year		
Full Cash Value	\$6,000,000		Full Cash Value	\$6,000,000	
Assessment Ratio	18%		Assessment Ratio	20%	
Assessed Value	\$1,080,000		Assessed Value	\$1,200,000	
Property Tax Rate	11%		Property Tax Rate	15%	
Property Tax Expense	\$118,800		Property Tax Expense	\$180,000	

Pass Through Calculation

- | | |
|--|-----------|
| 1. Current Year Property Tax Example | \$180,000 |
| 2. Test Year Property Tax Expense | \$118,800 |
| 3. Increase in Property Tax Expense Due to Rate Increase | \$61,200 |

Basis of Allocation of Increase / Decrease to Residential and Non-Residential Customer Class:

- | | |
|---|------|
| 4. % of Revenue Requirement assigned to Residential Class (From Schedule H-1) | 89% |
| 5. % of Revenue Requirement assigned to Non-Residential Classes (From Schedule H-1) | 11% |
| 6. Total | 100% |

Allocation of Increase / Decrease to Residential and Non-Residential Customer Class:

- | | |
|---|----------|
| 7. Increase / Decrease Allocated to Residential Class (Ln 3 X Ln 4) | \$54,468 |
| 8. Increase / Decrease Allocated to Non-Residential Class (Ln 3 X Ln 4) | 6,732 |
| 9. Total Increase in Purchased Power Expense Due to Rate Increase (Ln 7 + Ln 8) | \$61,200 |

Customer Count in Reporting Period:

- | | |
|--|--------|
| 10. Number of Wastewater Residential Customers | 65,160 |
| 11. Number of Commercial Wastewater Customers | 1,226 |
| 12. Total | 66,385 |

Calculation of Surcharge / Surcredit:

- | | |
|---|---------------|
| 13. Annual Increase Per Residential Customer (Ln 7 ÷ Ln 10) | \$0.84 |
| 14. Increase Per Residential Customer Per Month (Ln 13 ÷ 12) | \$0.0697 |
| 15. Surcharge / Surcredit Per Residential Customer Per Month (Ln 14 Rounded) | \$0.07 |
| 16. Annual Increase Per Non-Residential Customer (Ln 8 ÷ Ln 11) | \$5.49 |
| 17. Increase Per Non-Residential Customer Per Month (Ln 16 ÷ 12) | \$0.4576 |
| 18. Surcharge / Surcredit Per Non-Residential Customer Per Month (Ln 17 Rounded) | \$0.46 |

Bourassa Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
TOM FORESE
BOB BURNS
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF
EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT FAIR
VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR CHANGES IN ITS
RATES AND CHARGES BASED THEREON
FOR UTILITY SERVICE BY ITS AGUA FRIA
WASTEWATER, ANTHEM WASTEWATER,
SUN CITY WASTEWATER, SUN CITY WEST
WASTEWATER, AND MOHAVE
WASTEWATER DISTRICTS AND FOR
CONSIDERATION OF CONSOLIDATION AND
DE-CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
THOMAS J. BOURASSA
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

Page ii

**DIRECT TESTIMONY
OF
THOMAS J. BOURASSA
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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1 **EXECUTIVE SUMMARY**

2 Thomas J. Bourassa testifies that:

3 He has prepared Reconstructed Cost New Less Depreciation Rate Base ("RCNRB")
4 for EPCOR Water Arizona Inc.'s ("EWAZ") proposed consolidated district (Arizona
5 Wastewater), its stand-alone wastewater districts (Mohave Wastewater, Sun City
6 Wastewater, Sun City West Wastewater, Anthem Wastewater, and Agua Fria Wastewater) as
7 well as its deconsolidated districts that have been deconsolidated on the basis of the treatment
8 facility (Northwest Valley Wastewater, Russell Ranch Wastewater, Verrado Wastewater,
9 Wishing Well Wastewater, and Arizona Gateway Wastewater). He testifies that he used a
10 Cost Approach to determining the Reconstructed Cost New ("RCN") basis for direct and
11 allocated Plant-in-Service ("PIS") and Accumulated Depreciation ("A/D"). His Cost
12 Approach was based upon a trended original cost study. He describes the required
13 adjustments to original cost to restate PIS and A/D on an RCN basis. Finally, he describes
14 the adjustments to other original cost rate base components such as Advances-in-Aid of
15 Construction ("AIAC"), Contributions-in-aid of Construction ("CIAC"), Accumulated
16 Deferred Income Taxes ("ADIT"), Customer Deposits, Deferred Debits/Credits, and
17 Working Capital to restate these rate base components on an RCN basis.

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Thomas J. Bourassa. My business address is 139 W. Wood Drive, Phoenix, Arizona 85029.

Q. WOULD YOU BRIEFLY SUMMARIZE YOUR PRIOR WORK AND REGULATORY EXPERIENCE?

A. Prior to becoming a private consultant, I was employed by High-Tech Institute, Inc., and served as controller and chief financial officer. Prior to working for High-Tech Institute, I worked as a division controller for the Apollo Group, Inc. Before joining the Apollo Group, I was employed at Kozoman & Kermode, CPAs. In that position, I prepared compilations and other write-up work for water and wastewater utilities, as well as tax returns.

In my private practice, I have prepared and/or assisted in the preparation of numerous water and wastewater utilities' rate applications before the Arizona Corporation Commission ("Commission"). A copy of my regulatory work experience is attached as **Exhibit TJB-DT1**.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. On behalf of EPCOR Water Arizona Inc. ("EWAZ" or the "Company"). EWAZ is seeking a determination of its fair value rate base ("FVRB") and the setting of rates and charges for utility service based on that finding.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. I will testify in support of the Company's Reconstructed Cost New Less Depreciation Rate Base ("RCNRB") and am sponsoring the B-3, and B-4 schedules for EWAZ's proposed consolidated district (Arizona Wastewater), its stand-alone wastewater districts (Agua Fria Wastewater, Anthem Wastewater, Mohave Wastewater, Sun City

Wastewater, and Sun City West Wastewater) as well as its deconsolidated districts that have been deconsolidated on the basis of the treatment facility (Northwest Valley Wastewater, Russell Ranch Wastewater, Verrado Wastewater, Wishing Well Wastewater, and Arizona Gateway Wastewater). I will refer to these generally as "districts". The RCNRB is used in the development of the Company's FVRB.

II. SUMMARY OF RCNRB

Q. PLEASE SUMMARIZE THE RCNRB FOR THE PROPOSED CONSOLIDATED DISTRICT (ARIZONA WASTEWATER), EACH STAND-ALONE DISTRICT AND EACH DECONSOLIDATED DISTRICT.

A. The following table summarizes the RCNRB for the proposed consolidated district (Arizona Wastewater), each stand-alone district, and each deconsolidated district.

Table 1 – Consolidated District and Stand-Alone Districts

Consolidated District:

Arizona Wastewater	\$126,870,671
---------------------------	----------------------

Stand-Alone Districts:

Agua Fria Wastewater	\$ 16,554,623
Anthem Wastewater	\$ 22,964,185
Mohave Wastewater	\$ 5,782,765
Sun City Wastewater	\$ 42,266,834
Sun City West Wastewater	\$ 39,302,373

Deconsolidated Districts:

Northwest Valley Wastewater	\$ 47,324,542
Anthem Wastewater	\$ 22,964,185
Wishing Well Wastewater	\$ 5,351,896
Arizona Gateway Wastewater	\$ 430,874
Sun City Wastewater	\$ 42,266,834
Verrado Wastewater	\$ 5,447,527
Russell Ranch Wastewater	\$ 3,085,595

1 **Q. PLEASE BRIEFLY EXPLAIN RCNRB.**

2 **A.** The Commission has defined RCNRB in Title 14 as:

3 An amount consisting of the depreciated reconstruction cost new
4 of the property (exclusive of contributions and/or advances in aid
5 of construction) at the end of the test year, used and useful, plus a
6 proper allowance for working capital and including all applicable
7 pro forma adjustments. Contributions and advances in aid of
8 construction, if recorded in the accounts of the public service
9 corporation, shall be increased to a reconstruction new basis.¹

10 The term Reconstructed Cost New ("RCN") is the estimated cost of constructing the
11 utility's property at today's cost levels; this is typically done through a trending study or
12 through an engineering study using current cost estimates. RCN less depreciation
13 ("RCNLD") typically refers to the net plant-in-service ("PIS") after deducting
14 accumulated depreciation and amortization ("A/D").

15 **Q. PLEASE EXPLAIN THE BASIS FOR YOUR DETERMINATION OF RCN.**

¹ A.A.C. R14-2-103(A)(3)(n).

1 A. I conducted a trended original cost study as the means of determining RCN for each
2 district of the Company. The RCN is summarized on Schedule B-4 for each district.

3 **Q. ARE TRENDED ORIGINAL COST STUDIES AN ACCEPTED APPROACH TO**
4 **DETERMINING RCN?**

5 A. Yes. Valuation experts have used trended original cost studies in this manner for many
6 years. It is a cost effective and reasonable approach to the determination of RCN. The
7 Commission has accepted these studies in a number of cases.²

8 **Q. DOES THE FAIR VALUE STANDARD REQUIRE A DETERMINATION OF**
9 **THE CURRENT VALUE OF THE COMPANY'S INVESTED CAPITAL?**

10 A. Yes. It is my understanding that Arizona law requires the Commission to make a finding
11 of the "fair value" of the Company's property, i.e., its FVRB, and to use that finding as
12 the basis for setting rates. The goal of finding and using the "fair value" of the utility's
13 property is to ensure that the rates are set on the basis of the current value of the utility's
14 property, plant, and equipment. Therefore, it is appropriate to use the RCNRB in the
15 development of the FVRB, because the RCNRB reflects the current value of the plant, as
16 opposed to its historic or original cost.

17 **Q. HOW HAS THE COMMISSION USED THE RCNRB IN THE**
18 **DETERMINATION OF A COMPANY'S FVRB?**

19 A. The Commission has historically used a 50/50 weighting of Original Cost Rate Base
20 ("OCRB") and RCNRB.

21 **Q. WHAT CONCERNS DO YOU HAVE WITH THE EQUAL WEIGHTING OF**
22 **OCRB AND RCNRB TO ESTIMATE THE FVRB?**

² See e.g. Citizens Communications, Inc., Decision No. 60172 (May 7, 1997); Paradise Valley Water Company, Decision No. 60220 (May 29, 1997); Chaparral City Water Company, Decision 68176 (September 30, 2005); Chaparral City Water Company, Decision 71308 (October 21, 2009); Tucson Electric Power Company, Decision 73912 (June 27, 2013); and, UNS Gas, Inc., Decision 73142 (May 1, 2012).

1 A. Applying a 50% weight to the OCRB to estimate the FVRB is inconsistent with valuation
2 theory that is relied upon by investors.³ There are three primary approaches to valuation:
3 Cost Approach, Income Approach, and Market Approach. Traditionally, the Commission
4 has used a Cost Approach to determine the current value which estimates the value of the
5 asset based on the current cost of a reasonably comparable replacement asset, adjusted for
6 depreciation. But irrespective of the valuation approach and how much weight is given
7 to each approach, the task of valuation does not include a book value approach.⁴ An
8 approach which places a 50% weight on the depreciated original cost of the assets at the
9 time those assets were installed suggests that the book (or accounting value) of an
10 investment has a relationship to the current market value of the asset which is not the
11 case.⁵ In my view, applying a 50% weight to OCRB results in an understatement of fair
12 value.

13 **Q. PLEASE DESCRIBE THE TRENDED ORIGINAL COST STUDY.**

14 A. The trended original cost study was prepared to establish a measure of the cost to
15 reconstruct utility PIS at current 2015 cost levels. In a trended original cost study, trend
16 factors, as developed from cost indexes, are applied to the original cost by installation
17 year of the assets being studied. Using the Company's continuing property records,
18 which include the district (or business unit), the plant account, description, and date of
19 installation, and original cost for each asset, the December 31, 2015 current cost was
20 determined by dividing the 2015 cost index by the cost index for the year of installation
21 of the asset. For example, the current cost for a 2004 asset in Account 360, Collection
22 Mains-Forced was computed as follows:

³ There are basically three approaches of valuation: the Comparable Transactions Approach, the Income Approach, and the Cost Approach.

⁴ Pratt, Shannon P., Valuing a Business: The Analysis and Appraisal of Closely Held Companies, Fifth Edition, McGraw Hill, New York, 2008. pp. 351-352.

⁵ *Id.*

Original Cost of 2004 Asset X 2015 Cost Index for Account 360 ÷ 2004 Cost
Index for Account 360

For most accounts, the Handy-Whitman Index of Public Utility Construction Costs for the Plateau Region has been employed. Where the Handy-Whitman Index was used for the trend factors they are based on index numbers released by Handy-Whitman in Bulletin No. 182 for July 1, 2015. For certain plant accounts, which do not have a like-kind Handy-Whitman index, such as Accounts 340, 341, 346, 347, 351, 352, 390, 391, 394, 396, and 398, the Bureau of Labor Statistics consumer price index ("CPI") was used.

Q. WHAT IS THE HANDY-WHITMAN INDEX?

A. It is an index of public utility construction costs that has been published continuously since 1924 by Whitman, Requardt and Associates of Baltimore, Maryland. The Handy-Whitman Index is a well-recognized, widely used and generally accepted method for measuring differences in property values for insurance and other purposes, including the valuation of public utility property for rate case purposes. It has been used by UNS Energy's utilities and other companies in proceedings before the Commission for many years.

The Handy-Whitman Index is comprised of index numbers for various accounts prescribed by the National Association of Regulatory Utility Commissioners' Uniform System of Accounts and for six geographical divisions of the country, including the Plateau Division, in which Arizona and New Mexico are located. These index numbers result from a comparison of the current prices of materials, labor, and equipment to prices in a base year. Index numbers are determined for each year as of January 1 and July 1 with publication occurring approximately five months thereafter. The index numbers are used to determine cost trend factors, which are then applied to known original costs of

1 “like-kind” plant and property to determine the fluctuation in cost between the date of
2 original installation and the date of valuation.

3 **Q. DID YOU TREND LAND?**

4 A. No. Although not trending land costs results in an understatement of current value, I did
5 not trend land in order to simplify this filing and to reduce issues in dispute in this case.

6 **Q. HOW WAS THE CURRENT VALUE OF ACCUMULATED DEPRECIATION**
7 **DETERMINED?**

8 A. For each asset, the accumulated depreciation (“A/D”) was determined using the RCN
9 cost, the number of years in service, and the currently proposed depreciation rates. A
10 half-year convention was used.

11 **III. RCNRB SCHEDULES**

12 **Q. HAVE YOU PREPARED SCHEDULES SHOWING ADJUSTMENTS IN THE**
13 **DEVELOPMENT OF THE RCNRB?**

14 A. Yes. Schedule B-3 shows the development of RCNRB proposed by EWAZ. Schedule
15 B-3 starts with the original cost of PIS, A/D, Advances-in-Aid of Construction
16 (“AIAC”), Contributions-in-Aid of Construction (“CIAC”), Accumulated Deferred
17 Income Taxes (“ADIT”), Customer Deposits, Deferred Debits/Credits, and Working
18 Capital at the end of the test year. These are then adjusted to reflect the RCN basis. The
19 adjustments shown on Schedule B-3, labeled as ADJ TJB-RCN1 through ADJ TJB-
20 RCN11, are detailed on Schedule B-3, pages 2 through 11, for each district.

21 **Q. PLEASE DESCRIBE EACH OF THE B-3 ADJUSTMENTS.**

22 A. Adjustment ADJ TJB-RCN1 increases PIS and A/D for the direct assets for the district in
23 order to reflect the respective direct assets’ RCN basis for PIS and A/D.

1 Adjustment ADJ TJB-RCN2 increases PIS and A/D for the allocated Arizona
2 corporate assets for the district in order to reflect the respective allocated Arizona
3 corporate assets' RCN basis for PIS and A/D.

4 Adjustment ADJ TJB-RCN3 increases PIS and A/D for the allocated Northwest
5 Valley assets for the district in order to reflect the respective allocated Northwest Valley
6 assets' RCN basis for PIS and A/D.

7 Adjustment ADJ TJB-RCN4 increases PIS and A/D for the allocated EPCOR
8 Water (USA)'s corporate assets (business unit 6U) for the district in order to reflect the
9 respective allocated parent company corporate assets' RCN basis for PIS and A/D.

10 Adjustment ADJ TJB-RCN5 increases PIS and A/D for the proposed post-test
11 year PIS and A/D asset additions (one-year) for the district in order to reflect the
12 respective proposed post-test year PIS and A/D asset additions' (one-year) RCN basis for
13 PIS and A/D. For post-test year additions, the RCN basis for PIS and A/D is original
14 cost.

15 Adjustment ADJ TJB-RCN6 increases PIS and A/D for the proposed post-test
16 year PIS and A/D asset additions (additional six months) for the district in order to
17 reflect the respective proposed post-test year PIS and A/D asset additions' (additional six
18 months) RCN basis for PIS and A/D. For post-test year additions, the RCN basis for
19 PIS and A/D is original cost.

20 Adjustment ADJ TJB-RCN7 reflects the increase in AIAC at its RCN basis for
21 allocated Gateway AIAC (where applicable)

22 Adjustment ADJ TJB-RCN8 adjusts PIS and A/D for the allocated Vactor truck
23 assets' PIS and A/D for the district (where applicable) in order to reflect the respective
24 allocated Vactor truck assets' RCN basis for PIS and A/D.

Adjustment ADJ TJB-RCN9 increases AIAC and CIAC for the district in order to reflect the respective RCN basis for AIAC and CIAC.

Q. HOW WAS THE RCN BASIS FOR AIAC AND CIAC DETERMINED?

A. The original cost AIAC and CIAC was increased by a factor reflecting the ratio between depreciable RCN PIS and depreciable Original Cost PIS.

Q. THANK YOU. PLEASE CONTINUE.

A. Adjustment ADJ TJB-RCN10 increases ADIT for the district in order to reflect the RCN basis for ADIT.

Q. HOW WAS THE RCN BASIS FOR ADIT DETERMINED?

A. The original cost ADIT was increased by a factor reflecting the ratio between the RCNRB before ADIT and OCRB before ADIT.

Q. THANK YOU. PLEASE CONTINUE.

A. Adjustment ADJ TJB-RCN11 adjusts Deferred Debits for the capital investment costs at the Tolleson Wastewater Treatment Facility and the Glendale 99th Street Interceptor related to the asset sharing agreements for the district (where applicable) in order to reflect the RCN basis of these shared assets.

Q. HOW WAS THE RCN BASIS FOR THESE DEFERRED DEBITS DETERMINED?

A. The original cost for these deferred debits was increased by a factor reflecting the ratio between the RCNRB before the deferred charges for the Tolleson Wastewater Treatment Facility and the Glendale 99th Street Interceptor investments and the OCRB before the deferred charges for the Tolleson Wastewater Treatment Plant and the Glendale 99th Street Interceptor investments.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Mahler Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
TOM FORESE
BOB BURNS
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF
EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT FAIR
VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR
INCREASES/DECREASES IN ITS RATES AND
CHARGES BASED THEREON FOR UTILITY
SERVICE BY ITS AGUA FRIA, ANTHEM,
MOHAVE, SUN CITY, AND SUN CITY WEST
WASTEWATER DISTRICTS AND FOR
CONSIDERATION OF CONSOLIDATION AND
DE-CONSOLIDATION PROPOSALS.

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
SARAH M. MAHLER
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

**DIRECT TESTIMONY
OF
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APRIL 29, 2016**

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EXECUTIVE SUMMARY

Ms. Sarah M. Mahler testifies as follows in support of EPCOR Water Arizona Inc.'s rate base:

Ms. Mahler sponsors the following rate base schedules and related pro forma adjustments:

Schedule B-1: Summary of Fair Value Rate Base

Schedule B-2: Rate Base Pro Forma Adjustments

Schedule B-5: Computation of Working Capital Allowance

Rate Base Pro Forma Adjustments:

SMM RB-1 Test Year Plant & Accumulated Depreciation Balances

SMM RB-2 Remove Plant Acquisition Adjustment

SMM RB-3 AIAC Refunds Paid Post Test Year

SMM RB-4 Corporate Plant and Accumulated Depreciation Balances

SMM RB-5 Clear Regulatory Asset & Liability Balances

SMM RB-6 Northwest Valley Regional Treatment Facility (NWVRTF/7H) Allocation (*applicable to Sun City West Wastewater and Agua Fria Wastewater only*)

SMM RB-7 Decision No. 75268 Regulatory Treatment (*applicable to Mohave Wastewater only*)

SMM RB-8 Impute Gateway CIAC (*applicable to Mohave Wastewater only*)

SMM RB-9 6U Plant and Accumulated Depreciation Balances

SMM RB-10 Post Test Year Plant Additions - One Year

SMM RB-11 2017 Post Test Year Plant Additions - 6 Months

SMM RB-12 Removal of CIAC for Plant not in Rate Base

SMM RB-13 Tolleson Facility Improvements (*applicable to Sun City Wastewater only*)

SMM RB-14 Glendale Agreement Replacement Costs (*applicable to Sun City Wastewater only*)

SMM RB-15 Reclassification of Vactor Trucks

Ms. Mahler sponsors the following pro forma adjustments to the C Schedules:

SMM IS-16 Depreciation Expense on Direct Plant

SMM IS-17 Depreciation Expense on Corporate Plant

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1	SMM IS-18	Decision Number 75268 Regulatory Treatment
2		<i>(applicable to Mohave Wastewater only)</i> SMM IS-20
3		Depreciation on NWVRTF Plant <i>(applicable to Sun</i>
4		<i>City West Wastewater and Agua Fria Wastewater</i>
5		<i>only)</i>
6	SMM IS-21	Depreciation on 6U
7	SMM IS-22	Amortization of Gross CIAC
8	SMM IS-23	Depreciation on Post-Test Year Plant
9	SMM IS-24	Depreciation on 2017 Post-Test Year Plant – 6 Months
10	SMM IS-26	Tolleson Facility Improvements <i>(applicable to Sun</i>
11		<i>City Wastewater only)</i>
12	SMM IS-32	Glendale O&M Interceptor <i>(applicable to Sun City</i>
13		<i>Wastewater only)</i>
14	SMM IS-34	Vactor Trucks
15	SMM IS-36	Insurance Other Than Group

16 Ms. Mahler sponsors the following E Schedule in this proceeding:

17 Schedule E-5: Detail of Plant in Service

18 Finally, Ms. Mahler describes the Deployed Service Member Credit Program and
19 the deconsolidation factors used with the pro forma adjustments.

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE**
3 **NUMBER.**

4 A. My name is Sarah M. Mahler. My business address is 2355 W. Pinnacle Peak
5 Road, Suite 300, Phoenix, Arizona 85027, and my business phone is (623) 445-
6 2420.

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am employed by EPCOR Water USA ("EWUS") as Manager, Rates.

9 **Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES WITH EWUS.**

10 A. My primary responsibilities with EWUS are to manage the preparation of rate
11 applications and other regulatory filings consistent with the applicable regulatory
12 agency's filing requirements in Arizona and New Mexico. I also assist the
13 Director, Ms. Sheryl L. Hubbard, who is the regulatory liaison between EWUS
14 and the regulators of EPCOR Water Arizona Inc. ("EWAZ") and EPCOR Water
15 New Mexico Inc. ("EWNM") with research and any public outreach.

16 **Q PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND**
17 **EDUCATION.**

18 A. I have been employed by EWUS since January 2015. I have more than 5 years of
19 experience in public utility accounting and regulation; and another 10 years of
20 experience managing accounting practices and policies including expertise in
21 homebuilding, construction, software and audit/ public accounting.

22 My responsibilities for the last 5 years in the utility industry have primarily been
23 in the accounting department, managing financial planning, analysis, reporting,
24 and rate case preparation.

25 I have a Masters of Business Administration from the University of Phoenix. I

1 hold two Bachelor of Science degrees from Arizona State University in
2 Accounting and Global Business with an emphasis on Finance.

3 **II. PURPOSE OF TESTIMONY**

4 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

5 A. EWAZ is seeking to consolidate the rates and charges in its Agua Fria
6 Wastewater, Anthem Wastewater, Mohave Wastewater, Sun City Wastewater, and
7 Sun City West Wastewater districts. My testimony provides a broad overview of
8 the requested relief, and in addition provides support for: a) the requested Rate
9 Base for each district on a stand-alone and consolidated basis; b) the methodology
10 used to deconsolidate the existing wastewater districts by wastewater treatment
11 plant resulting in seven districts which are as follows: 1) Verrado Wastewater
12 District; 2) Russell Ranch Wastewater District; 3) Anthem Wastewater District; 4)
13 Wishing Well Wastewater District; 5) Arizona Gateway Wastewater District; 6)
14 Sun City Wastewater District; and the 7) Northwest Valley Wastewater District (a
15 combination of the portion of the Agua Fria district comprised of Corte Bella,
16 Cross River, Rancho Silverado, Rio Sierra, Dos Rios, Rancho Cabrillo and
17 Coldwater Ranch in what is referred to as the Northeast Agua Fria ("NEAF") area
18 and Sun City West Wastewater District; c) the Rate Bases resulting from the
19 deconsolidation effort; and d) a credit for deployed servicemen and women.

20 **III. SPONSORED SCHEDULES**

21 **A B SCHEDULES – RATE BASE INFORMATION**

22 **Q. PLEASE IDENTIFY THE SPECIFIC B SCHEDULES YOU ARE**
23 **SPONSORING.**

24 A. I am sponsoring the following schedules in this proceeding:

1 1 Schedule B-1: Summary of Fair Value Rate Base

2 2 Schedule B-2: Rate Base Pro Forma Adjustments

3 3 Schedule B-5: Computation of Working Capital Allowance

4 Q. WERE THESE SCHEDULES PREPARED BY YOU OR UNDER YOUR
5 SUPERVISION?

6 A. Yes, they were.

7 Q. PLEASE EXPLAIN SCHEDULE B-1.

8 A. Schedule B-1 titled "Summary of Fair Value Rate Base" sets forth the Summary
9 of Fair Value Rate Base for each district as of the end of the test year ending
10 December 31, 2015. Rate Base represents the investor-supplied plant facilities
11 and other investments required to provide utility service to customers. The
12 components typically recognized in the calculation of rate base are plant in
13 service, accumulated depreciation and amortization, customer advances in aid of
14 construction ("AIAC"), contributions in aid of construction ("CIAC"), customer
15 deposits, deferred income tax liabilities ("ADIT"), investment tax credits (when
16 applicable), and working capital. Other items that may be considered in the
17 calculation of rate base on a case-by-case basis include regulatory assets (also
18 referred to as deferred debits), regulatory liabilities, acquisition adjustments and
19 construction work in progress.

20 Net Plant, plant in service less the associated accumulated depreciation and
21 amortization, is generally the largest component of rate base. Rate base is
22 computed by offsetting Net Plant by AIAC, CIAC-Net of Accumulated
23 Amortizations, and ADIT. The accumulated balance of AIAC is shown on Line
24 13 of Schedule B-1. Line 15 of Schedule B-1 shows the CIAC, net of applicable
25 amortizations, for EWAZ. Line 18 shows the amount of Customer Deposits at the

end of the test year and Line 19 of the schedule shows the ADIT as of the end of the test year.

The Working Capital Allowance that is shown on Line 25 of Schedule B-1 is supported by calculations on Schedule B-5 and will be discussed later in this testimony. For ratemaking purposes, a working capital allowance is developed to adjust rate base to reflect the additional investment required for on-going utility operations over and above the amount reflected in Net Plant.

The Utility Plant Acquisition Adjustment paid by EWUS when Arizona American Water Company ("AZAM") was purchased from American Water has not been included in the calculation of Rate Base for the purposes of this proceeding. Line 26 of Schedule B-1 reflects this exclusion.

In addition to the original cost of rate base, the Company conducted a study to determine rate base based on a Reconstructed Cost New Depreciated ("RCNLD") valuation and has included the results in Schedule B-1. Schedules B-3 and B-4 support the values presented for RCNLD Rate Base in Schedule B-1.

Table 1 below is a summary of the rate base values calculated by the average of the original cost rate base ("OCRB") and the RCNLD for each district in this proceeding, showing total fair value rate base ("FVRB") of \$110,498,241.

Table 1. OCRB, RCNLD, and FVRB

District>	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total *
OCRB Rate Base	12,816,758	18,711,412	5,286,204	30,970,944	26,340,603	94,125,922
RCNLD Rate Base	16,554,623	22,964,185	5,782,765	42,266,834	39,302,373	126,870,781
FAIR Value Rate Base	14,685,691	20,837,799	5,534,485	36,618,889	32,821,488	110,498,352

There is a \$110 difference in Rate Base between the total of the stand-alone districts and the Arizona Wastewater Consolidated District caused by rounding in the composite property tax rate which is a component of working capital.

1 **Q. PLEASE EXPLAIN SCHEDULE B-2.**

2 A. Schedule B-2 titled "Original Cost Rate Base Pro Forma Adjustments" details the
3 pro forma adjustments identified and proposed to adjust the historical test year-end
4 plant, accumulated depreciation, AIAC, CIAC, and regulatory deferrals. Each pro
5 forma adjustment is designed to include all investments required to provide safe
6 and reliable service to historical test year customers at the time when the rates
7 resulting from this application become effective.

8 **Q. PLEASE EXPLAIN SCHEDULE B-5.**

9 A. Schedule B-5 provides the Computation of Working Capital Allowance. Working
10 capital is a measure of funding requirements of daily operating expenditures and
11 other non-plant investments that are necessary to sustain ongoing operations of the
12 utility. This measurement is designed to identify the average ongoing funding
13 requirements of investors for the test year. Working Capital consists of Cash
14 Working Capital derived from a Lead/Lag study, as well as 13-month averages
15 applicable to Required Bank Balances, Inventories, and Prepayments on the
16 Company's Balance Sheet. 13-month averages of the required bank balances,
17 inventories, both plant materials and chemicals, if applicable, and the prepayment
18 balances from the balance sheet have been calculated and are reflected on
19 Schedule B-5.

20 **Q. PLEASE DISCUSS THE MATERIALS AND SUPPLIES INVENTORY**
21 **COMPONENT OF THE WORKING CAPITAL REQUIREMENT.**

22 A. Theoretically, materials and supplies are included as a component of working
23 capital to provide a return on the investor's capital required to maintain a supply of
24 materials necessary to carry on day-to-day operations and maintenance activities.
25 The measurement of the materials and supplies inventory for working capital
26 purposes is computed using an average of thirteen monthly balances which

1 reduces distortions that may be caused when, and if, the inventory balances are
2 volatile or experience cyclical highs and lows.

3 **Q. PLEASE DISCUSS THE PREPAYMENTS COMPONENT OF THE**
4 **WORKING CAPITAL REQUIREMENT.**

5 A. Prepayments are included as a component of working capital to recognize an
6 investment of funds made by a company. Prepayments represent payments of
7 expenses made in advance of the period to which they apply. A 13-month average
8 balance is used to quantify the working capital allowance due to investments in
9 prepayments to be added to the Company's rate base.

10 **Q. PLEASE DISCUSS THE CASH WORKING CAPITAL COMPONENT OF**
11 **THE WORKING CAPITAL REQUIREMENT.**

12 A. Cash working capital should represent the average amount of capital provided by
13 investors, over and above the investment in plant and other rate base items, to
14 finance the cost of service during the time lag that exists between the time that
15 service is provided and the collection of revenues. In conjunction with the other
16 components of rate base, the cash working capital component measures the
17 amount of investor-supplied capital required to provide service. There are several
18 acceptable methods for computing the cash working capital component, but the
19 ACC Staff has adopted the use of the lead/lag methodology for determining cash
20 working capital for large water utilities in this jurisdiction. The Company's
21 lead/lag cash working capital calculation will be discussed in conjunction with the
22 discussion of Schedule B-6. See Ms. Hubbard's testimony.
23

B C SCHEDULES – TEST YEAR INCOME STATEMENTS

Q. PLEASE IDENTIFY THE SPECIFIC C SCHEDULES YOU ARE SPONSORING.

A. I am sponsoring a portion of the following schedule for the Company:

1 Schedule C-2: Income Statement Pro Forma Adjustments

Q. WERE THESE SCHEDULES PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes, they were.

Q. PLEASE EXPLAIN SCHEDULE C-2.

A. Schedule C-2 summarizes all pro forma adjustments and the adjusted 2015 test year revenues and expenses. I will sponsor some of the adjustments on Schedule C-2, as included in my testimony below. Others, including Ms. Sandra L. Murrey and Mr. Jon P. Boizelle, will sponsor the remaining adjustments.

C E SCHEDULES – FINANCIAL STATEMENTS AND STATISTICAL DATA

Q. PLEASE IDENTIFY THE SPECIFIC E SCHEDULES YOU ARE SPONSORING.

A. I am sponsoring the following schedule in this proceeding:

1 Schedule E-5: Detail of Plant in Service

Q. WAS THIS SCHEDULE PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes, it was.

Q. PLEASE EXPLAIN SCHEDULE E-5.

A. Schedule E-5 titled "Detail of Plant in Service" provides details of plant account activity during 2015 detailed by the National Association of Regulatory Utility Commissioners ("NARUC") accounts. The schedule also presents Arizona corporate plant account activity by NARUC account which is allocated to the EWAZ districts. Where applicable, the Northwest Valley plant is also presented by NARUC account and allocated to the Sun City West Wastewater District and the Agua Fria Wastewater District. Adjustments to Plant in Service are also shown on Schedule E-5 along with reconciliations to Plant in Service on Schedule B-2.

IV. RATE BASE PRO FORMA ADJUSTMENTS

Q. ARE YOU RECOMMENDING ANY ADJUSTMENTS TO THE TEST YEAR LEVELS OF PLANT IN SERVICE?

A. Yes. I recommend the following adjustments to the test year level of Plant in Service:

SMM RB-1	Test Year Plant & Accumulated Depreciation Balances
SMM RB-2	Remove Plant Acquisition Adjustment
SMM RB-3	AIAC Refunds Paid Post Test Year
SMM RB-4	Corporate Plant and Accumulated Depreciation Balances
SMM RB-5	Clear Regulatory Asset & Liability Balances
SMM RB-6	Northwest Valley Regional Treatment Facility (NWVRTF/7H) Allocation (<i>applicable to Sun City West Wastewater and Agua Fria Wastewater only</i>)
SMM RB-7	Decision No. 75268 Regulatory Treatment (<i>applicable to Mohave Wastewater only</i>)

SMM RB-8 Impute Gateway CIAC (*applicable to Mohave Wastewater only*)

SMM RB-9 6U Plant and Accumulated Depreciation Balances

SMM RB-10 Post Test Year Plant Additions - One Year

SMM RB-11 2017 Post Test Year Plant Additions - 6 Months

SMM RB-12 Removal of CIAC for Plant not in Rate Base

SMM RB-13 Tolleson Facility Improvements (*applicable to Sun City Wastewater only*)

SMM RB-14 Glendale Agreement Replacement Costs (*applicable to Sun City Wastewater only*)

SMM RB-15 Reclassification of Vactor Trucks

The adjustments that I am recommending to the test year levels of plant are reflected on each district's Schedule B-2.

A SMM RB-1 - PLANT & ACCUMULATED DEPRECIATION BALANCES

Q. **PLEASE EXPLAIN ADJUSTMENT SMM RB-1.**

A. Adjustment SMM RB-1 reconciles and adjusts asset and accumulated depreciation balances on the general ledger to those found on the Company's plant rollforwards for each wastewater district.

Table 2. Plant and Accumulated Depreciation Balances

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Plant per Rollforward	72,004,522	50,307,374	10,442,269	27,149,446	21,154,526	181,058,137
Plant per G/L	73,278,847	57,191,479	10,445,614	27,153,086	21,346,361	189,415,387
ADJ	(1,274,324)	(6,884,105)	(3,345)	(3,640)	(191,835)	(8,357,250)

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Acc Depr per Rollforward	18,145,928	22,341,690	2,131,524	14,621,572	12,347,811	69,588,526
Acc Depr per G/L	18,472,003	25,161,615	2,250,271	14,619,859	12,352,231	72,855,979
ADJ	(326,075)	(2,819,926)	(118,747)	1,713	(4,419)	(3,267,454)

Net Incr/(Decr)	(948,249)	(4,064,180)	115,402	(5,354)	(187,415)	(5,089,796)
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1 Q. **WHY IS THERE A DIFFERENCE BETWEEN THE GENERAL LEDGER**
2 **AND THE PLANT ROLLFORWARD?**

3 A: The plant rollforwards are a tool by which the Company begins with the most
4 recently approved plant and accumulated depreciation balances from the last rate
5 case, and rolls forward the plant additions, retirements, and adjustments through
6 the end of the current test year (12/31/2015). Through efforts to tie back to the
7 previous rate case (12/31/2008 for all districts except Mohave which was 6/30/13),
8 the Company identified certain errors that had been made with previous plant. As
9 part of the Company's overall effort to address accounting irregularities identified
10 in the last rate case (Decision #75268), a thorough review of prior rate cases was
11 performed to ensure the accuracy and integrity of the Company's accounting
12 records included in this case. During those efforts, the Company determined
13 certain adjustments were needed, including reclassification of plant, accumulated
14 depreciation adjustments, and corrections of mathematical errors. This adjustment
15 reflects the results of those efforts. Please also see ADJ SMM - RB6.

16 B **SMM RB-2 – REMOVE PLANT ACQUISITION ADJUSTMENT**

17 Q. **PLEASE EXPLAIN ADJUSTMENT SMM RB-2.**

18 A. Adjustment SMM RB-2 - Remove Plant Acquisition Adjustment eliminates the
19 plant acquisition adjustment from the calculation of Rate Base. When AZAM was
20 acquired by EWUS, an acquisition adjustment was recorded in the accounting
21 records. This adjustment removes the acquisition adjustment from inclusion in
22 Rate Base.

23 **Table 3. Plant Acquisition Adjustment Removal**

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Acquisition Adjustment	(858,026)	(1,047,827)	(185,407)	(2,642,253)	(1,784,584)	(6,518,096)

C SMM RB-3 – AIAC REFUNDS PAID POST TEST YEAR

Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-3.

A. In an effort to reduce the effects of regulatory lag and the need for more frequent rate cases, the Company is adjusting AIAC for known and measurable refunds to be paid in the period post-test year (12/31/15) and prior to expected implementation of rates resulting from this current case. As EWAZ has frequently experienced 30+ months duration from test year to decision, the Company has excluded AIAC refunds to be made in 2016 and 2017. Refunds for 2016 and 2017 are calculated based on refunds issued in 2015 and consider the term left on the associated contracts.

Table 4. AIAC Refunds Paid Post Test Year

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Refunds to be paid	(86,189)	(296,683)	(3,020)	(506)	(4,092)	(390,491)

D SMM RB-4 – CORPORATE PLANT AND ACCUMULATED DEPRECIATION BALANCES

Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-4.

A. Adjustment SMM RB-4 allocates the Arizona corporate plant and the corresponding accumulated depreciation from EWAZ as recorded on the plant rollforward to each district using a 4-factor allocation based on general metered customers (“GMC”). The adjustment also reconciles and adjusts for the difference between the plant rollforward and the plant balance carried on the general ledger for plant and accumulated balances.

Table 5. Corporate Plant and Accumulated Depreciation Allocation

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Arizona Plant						\$ 5,301,619
GMC Factor	4.2266%	5.1615%	0.9133%	13.0155%	8.7907%	32.1076%
Allocated Plant	224,076	273,644	48,420	690,033	466,050	1,702,223
per Sch E-1	222,302	271,477	48,036	684,569	462,359	1,688,743
Incr/(Decr)	1,774	2,167	383	5,464	3,691	13,480

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Arizona Plant Accumulated Depreciation						\$ 1,946,633
GMC Factor	4.2266%	5.1615%	0.9133%	13.0155%	8.7907%	32.1076%
Allocated A/D	82,276	100,476	17,779	253,364	171,123	625,017
per Sch E-1	79,149	96,657	17,103	243,735	164,619	601,263
Incr/(Decr)	3,127	3,819	676	9,629	6,504	23,754

Net Incr/(Decr)	(1,352)	(1,652)	(292)	(4,165)	(2,813)	(10,274)
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E SMM RB-5 – CLEAR REGULATORY ASSET AND LIABILITY BALANCES

Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-5.

A. Adjustment SMM RB-5 is made to clear out the balance in the Regulatory Asset and Regulatory Liability accounts. Separate pro forma adjustments will be proposed to include regulatory assets or liabilities that should be included in the calculation of rate base line 24 on Schedule B-2 which is labeled Deferred Debits but is intended to include requests for Regulatory Assets as well.

Table 6. Regulatory Accounts

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Regulatory Assets	232,662	284,129	424,457	15,774,161	483,908	17,199,318
Regulatory Liabilities	840	1,026	182	2,588	1,748	6,383
Total Adjustment	(231,822)	(283,103)	(424,276)	(15,771,574)	(482,161)	(17,192,935)

F **SMM RB-6 – NORTH WEST VALLEY REGIONAL TREATMENT**
FACILITY (7H) ALLOCATION

Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-6.

A. Adjustment SMM RB-6 allocates the North West Valley Regional Treatment Facility (“NWVRTF”) between the Agua Fria Wastewater and Sun City West Wastewater districts utilizing an allocation factor based on each district’s respective portion of the total sewer flows through the treatment facility during 2015. Flows from Northeast Agua Fria are metered at the NEAF Lift station. Flows from Sun City West are combined with flows from the NEAF lift station and metered at the NWVRTF. Metered flows from NEAF are subtracted from Sun City West’s flows via SCADA and are recorded individually and combined. All of these totals are entered into the Company’s Monthly Operating Report to Maricopa County. The percentage of flows between the two districts provides the basis for the allocation of both plant and operating expenses of the NWVRTF to the Agua Fria Wastewater and Sun City West Wastewater Districts. The calculation of that percentage is shown in Table 7 below.

Table 7. NWVRTF Allocation to Agua Fria and Sun City West

District	M gals	% of Total	Plant Balance	Accum Depr Balance	Net	Per Sch E1	Adj
NEAF Flows	151.1720	19.2150%	7,036,654	5,043,363	1,993,291	970,227	1,023,064
Sun City West Flows	635.5680	80.7850%	29,583,996	21,203,664	8,380,333	4,080,407	4,299,925
Total	786.7400		36,620,650	26,247,027	10,373,623	5,050,634	5,322,989

G **SMM RB-7 – DECISION NO. 75268 REGULATORY TREATMENT**

Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-7.

1 A. Decision No. 75268 created a regulatory asset and regulatory liability in relation to
2 certain asset retirements at the Mohave Wishing Well wastewater treatment plant.
3 The regulatory asset and the regulatory liability were included in rate base in that
4 Decision. The purpose of this pro forma adjustment is to adjust rate base in this
5 proceeding to include the current balance of the regulatory asset and regulatory
6 liability, net of the associated amortizations from September 2015 to December
7 2015. A regulatory asset of \$377,396 offset by a regulatory liability of (\$1,434)
8 results in a net increase to rate base of \$375,963. This adjustment applies to
9 Mohave Wastewater only.

10 **H SMM RB-8 – IMPUTE GATEWAY CIAC**

11 **Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-8.**

12 A. Developer funds totaling \$881,190 were transferred from AIAC to CIAC in the
13 test year (2015) because the refunding period had expired. The matching assets
14 began depreciating in 2001 and 2009. The associated advances have a 10-year
15 refunding provision. The Company has imputed the amortization on the CIAC
16 balance to match the associated assets' net book value with the CIAC net book
17 value at the end of the test year. The pro forma adjustment decreases the CIAC
18 balance net of amortization by \$235,205. This adjustment applies to Mohave
19 Wastewater only.

20 **I SMM RB-9 – 6U PLANT AND ACCUMULATED DEPRECIATION**

21 **Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-9.**

22 A. Adjustment SMM RB-9 allocates the plant and accumulated depreciation ("A/D")
23 balances from EWUS (6U) to each district using the general metered customer
24 allocation method discussed earlier. Assets include accounting software, and
25 shared I/T infrastructure, benefiting operations in Arizona and New Mexico. Our
26 Arizona customers represent 84.1211% of total U.S customers. The effect of the

allocation of plant and accumulated depreciation balances is detailed in Table 8 below.

Table 8. EWUS Plant

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
EWUS Plant						\$ 2,112,059
AZ Factor						84.1211%
AZ Plant						\$ 1,776,688
GMC Factor	4.2266%	5.1615%	0.9133%	13.0155%	8.7907%	32.1076%
Allocated Plant	75,093	91,704	16,226	231,245	156,184	570,452

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
EWUS A/D						\$ 1,096,323
AZ Factor						84.1211%
AZ Plant						\$ 922,239
GMC Factor	4.2266%	5.1615%	0.9133%	13.0155%	8.7907%	32.1076%
Allocated A/D	38,979	47,601	8,423	120,034	81,071	296,109

Net Incr/(Decr)	36,114	44,102	7,804	111,211	75,112	274,343
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J SMM RB-10 – POST TEST YEAR PLANT ADDITIONS - ONE YEAR

Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-10.

A. Adjustment SMM RB-10 labeled Post Test Year Plant Additions-One Year adjusts Plant in Service to include projects that were in the Construction Work in Progress (“CWIP”) account as of the end of the test year but were not yet complete. In addition to the expenditures still in CWIP, some additional project related expenditures for projects slated to be completed by December 31, 2016 are included as well. This adjustment adds the test year plant and 50% of the associated depreciation expense to the Accumulated Depreciation balance for one year. Company witness, Mr. Andrew Brown discusses the proposed post-test year plant additions in greater detail in his direct testimony.

All of the CWIP projects included in the pro forma adjustment consist entirely of revenue-neutral replacements of current facilities necessary to provide

continued safe and reliable service to existing customers. Investments in new service laterals that will provide service related to growth have not been included in the proposed rate base adjustments. The amounts of post test year plant and accumulated depreciation for one year after the end of the test year are summarized in Table 9 below.

Table 9. Post Test Year Plant

Plant	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
6U Plant	\$ 48,840	\$ 59,644	\$ 10,554	\$ 150,401	\$ 101,581	\$ 371,020
7A Plant	20,792	25,391	4,493	64,028	43,245	157,949
Direct Plant	1,583,000	2,297,501	364,442	6,083,923	5,277,583	15,606,449
7H Plant	729,503	-	-	-	3,068,013	3,797,516
Total	2,382,135	2,382,536	379,488	6,298,352	8,490,422	19,932,934

A/D	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
6U A/D	\$ 7,662	\$ 9,356	\$ 1,656	\$ 23,593	\$ 15,935	\$ 58,202
7A A/D	941	1,149	203	2,898	1,957	7,148
Direct A/D	80,233	128,508	21,072	204,220	142,885	576,919
7H A/D	44,551	-	-	-	187,366	231,917
Total	133,387	139,014	22,931	230,711	348,143	874,186
50%	66,694	69,507	11,466	115,356	174,071	437,093

Net Incr/(Decr)	2,315,441	2,313,029	368,023	6,182,997	8,316,351	19,495,841
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Q. WERE THE CWIP PROJECTS THAT THE COMPANY SEEKS TO INCLUDE IN RATE BASE IN THIS PROCEEDING APPROVED DURING THE COMPANY'S CAPITAL BUDGETING PROCESS?

A. Yes, they were. As part of its overall strategic business plan, EWAZ prepares a five-year capital investment plan. Each year, the capital investment plan is revisited to identify and prioritize necessary capital improvement projects to ensure safe and reliable water and wastewater utility services, including resolving

1 operational challenges, complying with regulatory requirements, and steps to
2 formalize and approve the annual budget. An assessment of capital improvements
3 completed during the prior year is performed, and adjustments, if applicable, are
4 made in accordance with the remaining years of the current five-year investment
5 plan.

6 **Q. PLEASE EXPLAIN THE BASIS OF EWAZ'S CAPITAL INVESTMENT**
7 **PLAN.**

8 **A.** The Company's capital investment plan is developed from capital improvements
9 identified in Comprehensive Planning Studies ("CPS") conducted on a district-
10 specific basis. From these studies, capital improvement projects are identified in
11 response to any areas of concern identified in the CPS.

12 **K SMM RB-11 – 2017 POST TEST YEAR PLANT ADDITIONS – 6 MONTHS**

13 **Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-11 – 2017 POST TEST YEAR**
14 **PLANT ADDITIONS – 6 MONTHS**

15 **A.** Similar to SMM RB-10, SMM RB-11 includes plant budgeted to be placed in
16 service during the first six months of 2017. Company witness, Andrew Brown,
17 discusses the proposed post-test year plant additions in greater detail in his direct
18 testimony.

19 As with SMM RB-10, all of the CWIP projects included consist entirely of
20 revenue-neutral replacements of current facilities necessary to provide continued
21 safe and reliable service to existing customers. Investments in new service laterals
22 that will provide service related to growth have not been included in the proposed
23 rate base adjustments. The amounts of post test year plant and accumulated
24 depreciation for six months in 2017 are summarized in Table 10 below.
25

Table 10. 2017 Post Test Year Plan Additions-Six Months

Plant	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
6U Plant	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7A Plant	29,586	36,131	6,393	91,109	61,535	224,753
Direct Plant	1,050,000	1,425,000	156,974	1,928,121	2,267,459	6,827,553
7H Plant	126,738	-	-	-	533,012	659,750
Total	1,206,324	1,461,131	163,367	2,019,229	2,862,006	7,712,056

A/D	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
6U A/D	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7A A/D	1,339	1,635	289	4,123	2,785	10,171
Direct A/D	53,219	79,706	9,076	64,722	61,389	268,111
7H A/D	7,740	-	-	-	32,551	40,291
Total	62,297	81,341	9,366	68,845	96,725	318,574
50%	31,149	40,670	4,683	34,422	48,363	159,287

Net Incr/(Decr)	1,175,175	1,420,460	158,684	1,984,807	2,813,643	7,552,769
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L SMM RB-12 – REMOVAL OF CIAC FOR PLANT NOT IN RATE BASE

Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-12.

A. Adjustment SMM RB-12 - Removal of CIAC not in Plant in Service decreases the CIAC balance associated with developer-funded projects that are still in CWIP at the end of the test year. Since these projects were not transferred from CWIP to Utility Plant in Service prior to December 31, 2015, and are not included in the Post Test Year Plant additions in adjustments SMM RB-11 and SMM RB-12; they are not included in the Company's requested Rate Base. Accordingly, the contributions associated with these developer-funded projects should not be reflected as a reduction to the Company's Rate Base.

Q. PLEASE SUMMARIZE THE COMPANY'S PROPOSED ADJUSTMENT.

A. The proposed pro forma adjustment is summarized in Table 11 below.

Table 11. Removal of CIAC on Plant Not In Service

District	Sun City Wastewater	Sun City West Wastewater	Anthem Wastewater	Agua Fria Wastewater	Mohave Wastewater	Total
CIAC Removed	-	(2,442)	-	(6,406)	(4,937)	(13,785)

M SMM RB-13 – TOLLESON FACILITY IMPROVEMENTS

Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-13.

A. The Sun City Wastewater District does not have a wastewater treatment facility, but instead has a long-term agreement with the City of Tolleson for wastewater treatment services (“Tolleson Agreement”) at the Tolleson Wastewater Treatment Plant (“Tolleson Plant”). The Tolleson Agreement was executed on June 21, 1985. The Tolleson Agreement includes four rate components. On April 23, 2003, the Company and the City of Tolleson executed a third amendment to the Tolleson Agreement. The third amendment included an increase in costs under Rate Component Three, to \$20,000 per month, up to an aggregate of \$200,000. The third amendment also added Component 4.

Decision No. 66386 (issued 10/6/03), authorized AZAW to defer all costs associated with increases in costs under Rate Component Three and the new costs pursuant to Rate Component Four, for consideration in a future rate case.

In Decision No. 70209 (issued 3/20/08), the Arizona Corporation Commission ordered as follows: “It is further ordered that on a going-forward basis, AZAW shall treat Rate Component One and Two of its Tolleson Agreement as operating expenses, and Rate Components Three and Four as regulatory assets.” The Commission went on to state, “It is further ordered that the amortization period for Rate Component Three and Four regulatory assets under the Tolleson Agreement

1 shall be the life of the assets themselves, and not the life of the financing of the
2 regulatory assets.”

3 Tolleson Rate Component 3 is a monthly payment for replacement and
4 contingency services. The fourth and final component is for major improvements
5 and additions, which were expected to total approximately \$10 million and
6 ultimately cost \$13.5 million. These assets are in service providing treatment
7 services to test year customers. Total costs for Rate Components 3 and 4 at the
8 end of the test year total \$15,192,114 offset by \$686,873 of accumulated
9 depreciation for a net increase to rate base of \$14,805,241.

10 **N SMM RB-14 – GLENDALE AGREEMENT REPLACEMENT COSTS**

11 **Q. PLEASE EXPLAIN ADJUSTMENT SMM RB-14.**

12 **A.** Per Decision 72047 (issued 1/6/11),¹ amounts paid to the City of Glendale by Sun
13 City Wastewater for improvements to wastewater collecting mains were approved
14 to be included in the determination of the fair value rate base. Per the Decision, the
15 original cost of \$917,907 was to be depreciated at a rate of 2.03% or \$1,552.79 per
16 month over 591 months. Amortization has accumulated to total \$136,826 as of the
17 end of the test year. This adjustment records the net value of the authorized
18 regulatory asset as of 12/31/2015. The Total Depreciation expense proposed in this
19 adjustment is \$18,633 per year. This adjustment applies only to Sun City
20 Wastewater District. The net increase to rate base is \$781,080.

21 **O SMM RB-15 – VACTOR TRUCKS**

22 **Q: WHAT IS THE PURPOSE OF PRO FORMA ADJUSTMENT SMM RB-15 -**
23 **RECLASSIFICATION OF VACTOR TRUCKS?**

24 **A.** Vactor and sludge trucks are used solely for wastewater line maintenance
25 operations and should be allocated 100% to the five EWAZ wastewater districts.

¹Decision No. 72047 at 12-14.

This pro forma adjustment allocates the existing assets as well as two projects that will be completed post test year to the wastewater districts. The adjustment is netted against the Arizona Corporate (7A) plant already allocated through the use of a GMC allocator. The total increase to rate base of \$665,281 is detailed below in Table 12.

Table 12. Part 1 Vector Truck Allocation

Asset/Proj #	Depr Rate	Plant	Acc Depr
# 168518	20%	\$ 235,275	\$ 39,150
# 218374	20%	179,111	\$ 22,353
# 1001902	20%	113,000	\$ 11,300
# 1001901	20%	360,000	\$ 36,000
Total		887,386	108,803

Table 12. Part 2 Vector Truck Allocation

Gross Plant	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Factor	13.1637%	16.0757%	2.8445%	40.5372%	27.3789%	100.0000%
Vac Trucks						\$ 887,386
Vac Trucks Allocation	116,813	142,653	25,242	359,721	242,957	887,386
Amount Already Allocated	(17,514)	(21,389)	(3,785)	(53,935)	(36,428)	(133,050)
Increase to Plant	99,299	121,265	21,457	305,787	206,529	754,337

Accum Depr	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Factor	13.1637%	16.0757%	2.8445%	40.5372%	27.3789%	100.0000%
Vac Trucks						\$ 108,803
Vac Trucks Allocation	14,323	17,491	3,095	44,106	29,789	108,803
Amount Already Allocated	(2,599)	(3,174)	(562)	(8,005)	(5,407)	(19,747)
Increase to Acc Depr	11,723	14,316	2,533	36,101	24,382	89,056
Net Incr/(Decr)	87,576	106,948	18,924	269,686	182,147	665,281

V. **INCOME STATEMENT PRO FORMA ADJUSTMENTS**

Q. **ARE YOU RECOMMENDING ANY ADJUSTMENTS TO THE TEST YEAR REVENUES OR EXPENSES?**

A. Yes. I am sponsoring the following adjustments to the test year revenues and expenses:

SMM IS-16	Depreciation Expense on Direct Plant
SMM IS-17	Depreciation Expense on Corporate Plant
SMM IS-18	Decision Number 75268 Regulatory Treatment (<i>applicable to Mohave Wastewater only</i>)
SMM IS-20	Depreciation on NWVRTF Plant (<i>applicable to Sun City West Wastewater and Agua Fria Wastewater only</i>)
SMM IS-21	Depreciation on 6U
SMM IS-22	Amortization of Gross CIAC
SMM IS-23	Depreciation on Post-Test Year Plant
SMM IS-24	Depreciation on 2017 Post-Test Year Plant – 6 Months
SMM IS-26	Tolleson Facility Improvements (<i>applicable to Sun City Wastewater only</i>)
SMM IS-32	Glendale O&M Interceptor (<i>applicable to Sun City Wastewater only</i>)
SMM IS-34	Vactor Trucks
SMM IS-36	Insurance Other Than Group

A **SMM IS-16 - DEPRECIATION EXPENSE ON DIRECT PLANT**

Q. **PLEASE EXPLAIN THE ADJUSTMENT FOR DEPRECIATION EXPENSE ON DIRECT PLANT.**

A. Recognizing that a full year of depreciation expense was not recorded on additions to plant during 2015, this pro forma adjustment is necessary to annualize the depreciation expense on plant in service as of December 31, 2015. The adjustment is the difference between the 2015 test year expense and the calculation of depreciation on test year-end plant at present depreciation rates. The impact of annualization of depreciation expense is summarized in Table 13 below.

Table 13. Depreciation Expense on Direct plant

Plant	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Direct Plant	2,501,753	2,401,901	471,378	669,762	493,438	6,538,231
per Sch E-6	1,519,059	1,934,199	97,252	785,766	1,589,788	5,926,065
Incr/(Decr)	982,693	467,702	374,126	(116,005)	(1,096,350)	612,167

B SMM IS-17: DEPRECIATION EXPENSE ON CORPORATE PLANT

Q. PLEASE EXPLAIN THE ADJUSTMENT FOR DEPRECIATION EXPENSE ON CORPORATE PLANT.

A. As with direct plant, an adjustment to annualize the depreciation expense for corporate plant is made and allocated to each district using an allocation factor based on general metered customers. Table 14 below details the allocation of Arizona's annual depreciation expense to each of the Wastewater districts.

Table 14. Depreciation Expense on Arizona Corporate (7A) Plant

Plant	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
AZ Depr Expense						\$ 390,316
GMC Factor	4.2266%	5.1615%	0.9133%	13.0155%	8.7907%	32.1076%
Direct Plant	16,497	20,146	3,565	50,802	34,312	125,321
Per Sch E-6	30,628	29,772	6,748	37,487	30,987	135,623
Incr/(Decr)	(14,131)	(9,626)	(3,183)	13,314	3,324	(10,301)

**C SMM IS-18: DECISION NUMBER 75268 REGULATORY TREATMENT –
(MOHAVE WASTEWATER ONLY)**

**Q. PLEASE EXPLAIN THE ADJUSTMENT FOR DECISION NUMBER
75268.**

A. Decision No. 75268 created a regulatory asset and regulatory liability in relation to Mohave wastewater plant. Amortization per Decision No. 75268 was set at 8% per year for the asset and liability components. The annual amortization of applicable to the asset of \$387,736 asset and the liability of (\$1,473) is \$31,019 and (\$118), respectively, for a net depreciation expense increase of \$30,901.

**D SMM IS-20: DEPRECIATION ON NWVRTF PLANT (SUN CITY WEST
WASTEWATER AND AGUA FRIA WASTEWATER DISTRICTS)**

**Q. PLEASE EXPLAIN THE ADJUSTMENT FOR DEPRECIATION ON
NWVRTF PLANT.**

A. As with direct plant, an adjustment to annualize the depreciation expense for NWVRTF plant is made and allocated to Agua Fria Wastewater and Sun City West Wastewater using each district's applicable percentage of wastewater flows to the plant. The flows related to the Agua Fria Wastewater District are from the NEAF area of the district.

Table 15. NWVRTF Depreciation Expense

District	M gals	% of Total	Depr Expense	per Sch e6	Adj
NEAF Flows	151.1720	19.2150%	\$ 407,499	\$ 88,273	\$ 319,226
Sin City West Flows	635.5680	80.7850%	\$ 1,713,236	\$ 371,243	\$ 1,341,993
Total	786.7400		\$ 2,120,735	\$ 459,515	\$ 1,661,219

E SMM IS-21: DEPRECIATION ON EWUS (6U)

Q. PLEASE EXPLAIN THE ADJUSTMENT FOR DEPRECIATION ON 6U.

A. Depreciation expense is annualized for EWUS (6U) plant, and then allocated to the appropriate districts. The adjustment computes the depreciation expense on the 6U assets allocated to Arizona operations, and then allocates the Arizona portion to each individual District. Table 16 below details the allocation of 6U annual depreciation expense to the Wastewater districts.

Table 16. Depreciation Expense on EWUS (6U) Plant

Plant	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
6U Depr Exp						\$ 317,695
AZ Factor						84.1211%
GMC Factor	4.2266%	5.1615%	0.9133%	13.0155%	8.7907%	32.1076%
Depr Exp	\$ 11,295	\$ 13,794	\$ 2,441	\$ 34,784	\$ 23,493	\$ 85,807

F SMM IS-22: AMORTIZATION OF GROSS CIAC

Q. PLEASE EXPLAIN THE ADJUSTMENT FOR AMORTIZATION OF GROSS CIAC.

A. Amortization of gross CIAC as of 12/31/15 is annualized for the year based on the balance at test year end in this pro forma adjustment summarized in Table 17 below.

Table 17. Gross CIAC Amortization

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Gross CIAC	\$(27,336,212)	\$(6,256,463)	\$(2,661,834)	\$(787,885)	\$(328,330)	\$(37,370,723)
Composite Depreciation Rate	3.47%	4.77%	4.51%	2.47%	2.33%	3.978%
Incr/(Decr)	(949,780)	(298,712)	(120,159)	(19,437)	(7,658)	(1,395,745)

G SMM IS-23: DEPRECIATION ON POST-TEST YEAR PLANT

Q. PLEASE EXPLAIN THE ADJUSTMENT FOR DEPRECIATION ON POST-TEST YEAR PLANT.

A. The inclusion of one year of post-test year plant also requires the calculation and inclusion of one year's depreciation expense on the post-test year plant. The adjustment for each district includes one year's depreciation for post-test year plant in that district and the allocation of post-test year Arizona Corporate / EWAZ (7A), EWUS (6U), and NWVRTF (7H) to the appropriate districts. The summary of the depreciation expense on post-test year plant is shown below in Table 18.

Table 18. Depreciation on Post-Test Year Plant

DEPR	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
6U Depr	\$ 7,662	\$ 9,356	\$ 1,656	\$ 23,593	\$ 15,935	\$ 58,202
7A Depr	941	1,149	203	2,898	1,957	7,148
Direct Depr	80,233	128,508	21,072	204,220	142,885	576,919
7H Depr	44,551	-	-	-	187,366	231,917
Total	133,387	139,014	22,931	230,711	348,143	874,186

H SMM IS-24: DEPRECIATION ON POST-TEST YEAR PLANT – 6 MONTHS

Q. PLEASE EXPLAIN THE ADJUSTMENT FOR DEPRECIATION ON POST-TEST YEAR PLANT – 6 MONTHS.

A. The inclusion of an additional 6 months of post-test year plant in 2017 also requires the inclusion of a full year's depreciation on the 6 months of 2017 post-test year plant. The adjustment for each district includes one year's depreciation expense for post-test year plant in that district and the allocation of post-test year Arizona Corporate / EWAZ (7A), EWUS (6U), and NWVRTF (7H) depreciation expense to the appropriate districts. The summary of the depreciation expense on the first six months of 2017's post-test year plant is shown below in Table 19.

Table 19. Depreciation Expense on 2017 Post Test Year Plant-6 Months

Depr	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
6U Depr	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7A Depr	1,339	1,635	289	4,123	2,785	10,171
Direct Depr	53,219	79,706	9,076	64,722	61,389	268,111
7H Depr	7,740	-	-	-	32,551	40,291
Total	62,297	81,341	9,366	68,845	96,725	318,574

I SMM IS-25: CORPORATE ALLOCATIONS

Q. PLEASE EXPLAIN THE ADJUSTMENT FOR CORPORATE ALLOCATIONS

A. Corporate Allocations are costs associated with operational services provided by EPCOR Utilities, Inc. ("EUI") including Human Resources, Accounting and Reporting Software, Legal, and Treasury Management Services. This adjustment removes Public and Governmental Affairs costs and also increases labor costs by 3% for 2016 and 2017.

Table 20. Corporate Allocations

Corporate Allocations	
Annual Charge	3,792,265
Labor Increase	146,433
P&GA	(307,499)
Total	3,631,200

Depr	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Factor	5.6605%	5.5025%	1.2471%	6.9283%	5.7270%	25.0654%
Corporate Allocations						3,631,200
Corp Allocation to Remain	205,544	199,805	45,285	251,580	207,960	910,174
G/L	223,728	217,481	49,291	273,836	226,357	990,694
Reduction To Expense	(18,184)	(17,676)	(4,006)	(22,256)	(18,397)	(80,519)

1 **J SMM IS-26: TOLLESON FACILITY IMPROVEMENTS**

2 **Q. PLEASE EXPLAIN THE ADJUSTMENT FOR TOLLESON FACILITY**
3 **IMPROVEMENTS.**

4 A. Of the components authorized for deferral in previous cases (see discussion
5 pertaining to Adjustment SMM RB-13), the Company must propose depreciation
6 rates for the Rate Component 3-Reserve and Contingencies expenditures totaling
7 \$510,650, and the Rate Component 4 capital expenditures totaling \$13,552,349.
8 The Company is proposing the same useful life for the reserve and contingencies
9 balance of 10.33 years as was previously approved for like-kind assets. For the
10 Rate Component 4 regulatory asset consisting of a dechlorination project, a solids
11 handling project, and an ammonia treatment project, the Company is proposing an
12 asset life of 15 years, consistent with the depreciable life requested for NARUC
13 accounts 380500 and 380200 which are for chemical treatment and sludge
14 removal projects.

15 The Company is proposing total depreciation expense on all Rate Component 3
16 and 4 regulatory assets totaling \$1,042,019 per year. This adjustment applies only
17 to Sun City Wastewater District.

18 **K SMM IS-32: GLENDALE O&M INTERCEPTOR**

19 **Q. PLEASE EXPLAIN THE ADJUSTMENT FOR THE GLENDALE O&M**
20 **INTERCEPTOR.**

A. The test year expenses do not include costs related to the odor control costs and license fees for the City of Glendale's 99th Avenue Interceptor due to a delay in receipt of invoices for these services and fees from the City of Glendale during 2015. This pro forma adjustment normalizes the annual expense related to these costs based on 2014 invoices. Total annual expense for odor control and license fees is \$29,000. This adjustment applies to Sun City Wastewater District only.

L SMM IS-34: VACTOR TRUCKS

Q. PLEASE EXPLAIN THE ADJUSTMENT FOR VACTOR TRUCKS.

A. Vactor and sludge trucks are exclusively used in wastewater operations of EWAZ. This adjustment allocates all Vactor and sludge trucks to the wastewater districts. A summary of the pro forma adjustment is detailed in Table 21 below.

Table 21. Allocation of Vactor Truck Depreciation Expense

Asset/Proj #	Depr Rate	Corporate Allocations	Depr Exp
# 168518	20%	\$ 235,275	\$ 47,055
# 218374	20%	179,111	\$ 35,822
# 1001902	20%	113,000	\$ 22,600
# 1001901	20%	360,000	\$ 72,000
Total		887,386	\$ 177,477

Depr	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Factor	13.1637%	16.0757%	2.8445%	40.5372%	27.3789%	100.0000%
Vac Trucks						177,477
Vac Trucks Allocation	23,363	28,531	5,048	71,944	48,591	177,477
Amount Already Allocated	(1,095)	(1,337)	(237)	(3,371)	(2,277)	(8,316)
Increase to Expense	22,268	27,194	4,812	68,573	46,315	169,162

M SMM IS-35: INSURANCE OTHER THAN GROUP

Q. PLEASE EXPLAIN THE ADJUSTMENT FOR INSURANCE OTHER THAN GROUP.

A. Insurance Other Than Group consists of 17 separate components. Annually, the Company reports certain business statistics to its insuring agencies including Revenues, Plant Balances, Employee Count, Total Payroll and Vehicle Counts. Each of the 17 components is adjusted annually based on these statistics. The primary components are property insurance, excess liability, worker's compensation, and crime. The Company has taken the average rate applicable to each of these components for the last three years, and made a conforming adjustment for employee count, test year and proposed revenues, and property. The Company is also currently responding to an ADEQ review, whereby the site bond requirement for each of our wastewater treatment facilities is being updated. This adjustment, summarized in Table 22 below, also reflects the expected results of that review.

Table 22. Insurance Other Than Group

District	Agua Fria Wastewater	Anthem Wastewater	Mohave Wastewater	Sun City Wastewater	Sun City West Wastewater	Total
Insurance	91,124	83,347	24,707	78,647	87,219	365,043
General Ledger	70,780	72,748	24,358	48,567	99,077	315,531
Increase to Expense	20,344	10,599	349	30,079	(11,859)	49,512

VI. DEPLOYED SERVICE MEMBER CREDIT PROGRAM

Q. WHAT IS THE DEPLOYED SERVICE MEMBER CREDIT PROGRAM?

A. Given the Company's proximity to the Luke Air Force Base, many of our residents are active duty service men and women. On occasion, those service members may be required to serve a tour of duty (or deployment) for an extended period of time away from their primary residence. In these instances, the service member is not using EWAZ services for much more than simple irrigation and other outdoor maintenance, but is still being charged the basic service charges. The Company would like an opportunity to recognize these circumstances through

1 a credit on the deployed service member's bill if the following criteria are met:

2 1) Deployment is not a "permanent change of station"

3 Permanent change of station requires a service member to
4 permanently change his or her place of residence, paid for by the
5 applicable military branch. A service member's decision to keep a
6 secondary residence in Arizona would be discretionary and would
7 not qualify for this credit.

8 2) Deployed member does not have family living in the premises

9 Short term deployments, where a spouse and/or dependents remain
10 stateside would not qualify, as the service member would receive
11 separate compensation to support domestic bills while deployed.

12 3) All branches of service would be eligible, (e.g. Army, Navy,
13 Marines, Coast Guard, and Air Force).

14 The Company is proposing to work with the housing offices at Luke Air Force
15 Base to determine the best administration of this program. The credit would be
16 equal to the basic service charge plus the volumetric/commodity charges plus any
17 taxes on the monthly wastewater bill. At this time, a maximum number of
18 participants of 50 per wastewater district seems appropriate. The Company may
19 seek to defer any credits provided to service members and would propose recovery
20 in the next general rate case, once the cost of the program can be determined. The
21 Company will also evaluate the maximum participant count at that time.

22 **VII. DECONSOLIDATION METHODS**

23 **Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENTS TO**
24 **RATE BASE IN THE DISTRICTS DECONSOLIDATED ON THE BASIS**
25 **OF WASTEWATER TREATMENT FACILITY?**

1 A. The four major Rate Base components of Plant, Accumulated Depreciation,
2 Advances in Aid of Construction (AIAC), and Contributions in Aid of
3 Construction (CIAC) were deconsolidated based on direct examination of the
4 contents of each account. Agua Fria was deconsolidated into Russell Ranch
5 Wastewater District and Verrado Wastewater District. Mohave was
6 deconsolidated into the Arizona Gateway District and Wishing Well District. The
7 Northwest Valley Wastewater District which is served by the NWVRTF, is a
8 combination of the portion of the Agua Fria district comprised of Corte Bella,
9 Cross River, Rancho Silverado, Rio Sierra, Dos Rios, Rancho Cabrillo and
10 Coldwater Ranch, in what is referred to as the Northeast Agua Fria area, and the
11 Sun City West Wastewater District.

12 Through the use of an external consultant, Ernst & Young, plant and CIAC were
13 deconsolidated from the original districts based on the asset description, work
14 orders, developer agreements, and interviews with Engineering Project Managers.
15 In order to deconsolidate AIAC, the Company undertook an examination of the
16 developer agreements for the corresponding funds and assigned each a sub-
17 district. Accumulated Depreciation was allocated based on the respective plant
18 balances at each of the last test years for the applicable stand-alone districts.
19 Corporate Plant was allocated to each district based on the number of general
20 metered customers at the end of the test year. The results of internal and external
21 reviews are shown in Table 23 below:

Table 23. Deconsolidation

District	Agua Fria	Russell Ranch	Verrado	NEAF
PLANT	\$72,004,522	\$5,514,717	\$51,218,632	\$15,271,173
ACC DEPR	\$18,145,928	\$1,099,533	\$13,662,754	\$3,383,640
CIAC	\$21,840,998	\$2,620,211	\$15,230,899	\$3,989,888
AIAC	\$24,066,905	\$0	\$18,125,120	\$5,941,785

District	Mohave	Arizona_Gateway	Wishing Well
PLANT	\$10,442,269	\$1,526,605	\$8,915,664
ACC DEPR	\$2,131,524	\$198,578	\$1,932,946
CIAC	\$2,200,394	\$892,989	\$1,307,405
AIAC	\$1,806,753	\$472,957	\$1,333,796

Q. WHAT IS THE BASIS FOR THE PRO FORMA ADJUSTMENTS TO THE INCOME STATEMENT IN THE DISTRICTS DECONSOLIDATED ON THE BASIS OF WASTEWATER TREATMENT FACILITY?

A. The Company developed a 3-factor allocation method using customer count, gallons treated/wastewater flows, and gross plant to allocate Income Statement expenses to the sub-districts. With the exception of revenues and expenses related to the NWVRTF (7H), all Income Statement items were allocated using the following factors detailed in table 24:

Table 24. 3-Factors for Deconsolidation

AGUA FRIA				
DISTRICT	Average Number of Customers	Gallons Treated	Gross Plant Balance	3-Factor Allocation
North East Agua Fria	3,787	151,132,754	\$ 15,271,173	
	54.86%	51.76%	21.21%	42.61%
Russell Ranch	211	10,656,000	\$ 5,514,717	
	3.06%	3.65%	7.66%	4.79%
Verrado	2,905	130,192,000	\$ 51,218,632	
	42.08%	44.59%	71.13%	52.60%
	6,903	291,980,754	\$ 72,004,522	100%

MOHAVE				
DISTRICT	Average Number of Customers	Gallons Treated	Gross Plant Balance	3-Factor Allocation
Wishing Well	1,523	78,671,643	\$ 8,915,664	
	99.74%		85.38%	92.56%
Gateway	4	3,189,161	\$1,526,605	
	0.26%		14.62%	7.44%
	1,527	81,860,804	10,442,269	100%

Revenues were deconsolidated using the test year billing determinants which can be found in the H Schedules. Each billing address/premise is associated with a meter reading route, specific to a neighborhood. Deconsolidation of the billing determinants using the meter reading routes yielded the following results in Table 25:

Table 25. Revenue Deconsolidation

District	Agua Fria	Russell Ranch	Verrado	NEAF
REVENUES	\$5,986,192	\$180,550	\$2,575,470	\$3,230,170

District	Mohave	AZ_ Gateway	Wishing Well
REVENUES	\$1,134,908	\$17,015	\$1,117,893

VIII. WHICH FACTOR IS WHICH?

Q. PLEASE EXPLAIN WHICH FACTOR IS USED FOR EACH OF THE RATE BASE AND INCOME STATEMENT ADJUSTMENTS

1 A. Exhibit SMM-1 lists which factor is used to allocate corporate items, as well as
2 which is used for deconsolidation. Plant is allocated using general metered
3 customers, while expenses are allocated using the 4-factor.

4 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

5 A. Yes.

EXHIBIT SMM-1

Allocation Factors Used in Schedules

Schedule B2 - Original Cost to Rate Base Adjustments		Allocable Items	Column # *	Deconsolidation	Column # *
RB-1	Test Year Plant and Accumulated Depreciation Balances	Direct		Direct	
RB-2	Remove Plant Acquisition Adjustment	GMC Factor	[D]	GMC Factor	[L] for Mohave or [N] for Agua Fria
RB-3	AIAC Refunds Paid Post Test Year	Direct		Direct	
RB-4	Corporate Plant and Accumulated Depreciation Balances	GMC Factor	[D]	GMC Factor	[L] for Mohave or [N] for Agua Fria
RB-5	Clear Regulatory Asset and Liability Balances	Direct		GMC Factor	[L] for Mohave or [N] for Agua Fria
RB-6	Northwest Valley Plant (7H) Allocation	NEAF 19.21%/ SCW 80.79%		NWV 100%	
RB-7	Dec 75268 Regulatory Treatment - Mohave Only	Mohave Only		Wishing Well	
RB-8	Impute Gateway CIAC	Mohave Only		Gateway	
RB-9	6U Plant and Accumulated Depreciation Balances	Arizona & GMC Factor	[D] * Line 31 Col [D]	GMC Factor	[L] for Mohave or [N] for Agua Fria
RB-10	Post Test Year Plant Additions - One Year	Arizona or GMC Factor or NWV Factor	[D] or Line 31 Col [D] or NWV Factor	GMC Factor	[L] for Mohave or [N] for Agua Fria
RB-11	2017 Post Test Year Plant Additions- 6 Months	Arizona or GMC Factor or NWV Factor	[D] or Line 31 Col [D] or NWV Factor	GMC Factor	[L] for Mohave or [N] for Agua Fria
RB-12	Removal of CIAC for Plant not in Rate Base	Direct		Direct	
RB-13	Tolleson Facility Improvements	Sun City Only		Sun City Only	
RB-14	Glendale Agreement Replacement Costs	Sun City Only		Sun City Only	
RB-15	Reclassification of Vector Trucks	GMC Factor & WW Factor	[O]	WW Factor	[L] for Mohave or [N] for Agua Fria

Schedule B3 - RCN Rate Base Adjustments		Allocable Items	Column # *	Deconsolidation	Column # *
RCN-1	Direct Plant and Accumulated Depreciation Balances	Direct		Direct	
RCN-2	Allocated Corporate Plant and Accumulated Depreciation Balances	GMC Factor	[D]	GMC Factor	[L] for Mohave or [N] for Agua Fria
RCN-3	North West Valley Wastewater Plant	NEAF 19.21%/ SCW 80.79%		NWV 100%	
RCN-4	6U Plant and Accumulated Depreciation Balances	Arizona & GMC Factor	[D] * Line 31 Col [D]	GMC Factor	[L] for Mohave or [N] for Agua Fria
RCN-5	Post Test Year Plant Additions - One Year	Direct		Direct	
RCN-6	2017 Post Test Year Plant Additions- 6 Months	Direct		Direct	
RCN-7	Intentionally Left Blank	N/A		N/A	
RCN-8	Reclassification of Vector Trucks	WW Factor	[O]	GMC Factor	[L] for Mohave or [N] for Agua Fria
RCN-9	RCN Advances-in-Aid of Construction (AIAC) and Contributions-in-Aid of Construction (CIAC)	N/A		N/A	
RCN-10	RCN Accumulated Deferred Income Taxes	N/A		N/A	
RCN-11	Tolleson & Glendale Agreements	Sun City Only		Sun City Only	

Allocation Factors Used in Schedules

Schedule C Income Statement Adjustments		Allocable Items	Column # *	Deconsolidation	Column # *
IS-1	Remove Unbilled Revenues	N/A		N/A	
IS-2	Adjust Property Taxes to Reflect Proposed Revenues:	Conforming		Conforming	
IS-3	Federal and State Income Taxes	Conforming		Conforming	
IS-4	Interest Synchronization with Rate Base	Conforming		Conforming	
IS-5	Bad Debt Expense	Direct		Direct	
IS-6	Annualization of Customers	Direct		Direct	
IS-7	Removal of General Disallowable Items	4- Factor	[I]	WW 3- Factor	[K] for Mohave or [M] for Agua Fria
IS-8	Annualize Labor and Labor Related Expenses	Arizona or 4 Factor or NWV Factor	[I] or Line 31 Col [I] or NWV Factor	WW 3- Factor **	Direct for Mohave or [M] for Agua Fria
IS-9	Purchased Power	4- Factor	[I]	WW 3- Factor	[K] for Mohave or [M] for Agua Fria
IS-10	Removal of 10% of Performance Based Compensation	Arizona or 4 Factor or NWV Factor	[I] or Line 31 Col [I] or NWV Factor	WW 3-Factor **	Direct for Mohave or [M] for Agua Fria
IS-11	Postage Increase	4- Factor	[I]	WW GMC Factor	[L] for Mohave or [N] for Agua Fria
IS-12	Customer Care & Billing Services	4- Factor	[I]	WW GMC Factor	[L] for Mohave or [N] for Agua Fria
IS-13	Rate Case Expense	4- Factor ***	[I]	4- Factor ***	WW 4-Factor Col [J]
IS-14	Update Regulatory Expense	Only Factor	[I] or [P]	WW 3- Factor	[M] for Agua Fria
IS-15	Adjust Legal Expense	4- Factor	[I]	WW 3- Factor	[K] for Mohave or [M] for Agua Fria
IS-16	Annualize Depreciation Expense on Direct Plant	Direct		Direct	
IS-17	Annualize Depreciation Expense on Corporate Plant	GMC Factor	[D]	WW GMC Factor	[L] for Mohave or [N] for Agua Fria
IS-18	Decision No 75268 Regulatory Treatment - Mohave Only	Mohave Only		Wishing Well	
IS-19	Intentionally Left Blank	N/A		N/A	
IS-20	Annualize Depreciation Expense on NWV Plant	NEAF 19.21%/ SCW 80.79%		NWV 100%	
IS-21	Annualize Depreciation Expense - 6U	Arizona & GMC Factor	[D] * Line 31 Col [D]	WW GMC Factor	[L] for Mohave or [N] for Agua Fria

Allocation Factors Used in Schedules

Schedule C Income Statement Adjustments Cont'd		Allocable Items	Column # *	Deconsolidation	Column # *
IS-22	Annualize Amortization of CIAC	Direct		Direct	
IS-23	Depreciation Expense on Post Test Year Plant	Arizona or GMC Factor or NWV Factor	[D] or Line 31 Col [D] or NWV Factor	WW GMC Factor	[L] for Mohave or [N] for Agua Fria
IS-24	Depreciation Expense on 2017 Post Test Year Plant 6 Month	Arizona or GMC Factor or NWV Factor	[D] or Line 31 Col [D] or NWV Factor	WW GMC Factor	[L] for Mohave or [N] for Agua Fria
IS-25	Annualize Corporate Allocations	4- Factor	[I]	WW Factor	[K] for Mohave or [M] for Agua Fria
IS-26	Tolleson Facility Improvements	Sun City Only		Sun City Only	
IS-27	Glendale Agreement Replacement Costs	Sun City Only		Sun City Only	
IS-28	Effluent - Mohave Wastewater Only	Mohave Only		Wishing Well	
IS-29	CPI Increase	4- Factor	[I]	WW 3- Factor	[K] for Mohave or [M] for Agua Fria
IS-30	Cityworks License Fee	Arizona & GMC Factor	Line 31 Col [D] * [I]	WW 3- Factor	[K] for Mohave or [M] for Agua Fria
IS-31	Low Income Program Costs	Direct		WW GMC Factor	[L] for Mohave or [N] for Agua Fria
IS-32	Glendale O&M Interceptor	Sun City Only		Sun City Only	
IS-33	Customer Communication & Education	Arizona & 4 Factor	Line 31 Col [D] * [I]	WW 3- Factor	[K] for Mohave or [M] for Agua Fria
IS-34	Reclassification of Vector Trucks	GMC Factor & WW Factor	[D] and [O]	WW GMC Factor	[L] for Mohave or [N] for Agua Fria
IS-35	Anthem Power Cost	Anthem only		N/A	
IS-36	Insurance Other Than Group	Conforming		Conforming	
E1	Comparative Balance Sheet	Plant - Direct		Plant - Direct	
E1	Comparative Balance Sheet	Accum Depreciation - Direct		Accum Depreciation - Direct	
E1	Comparative Balance Sheet	Other -Arizona or GMC Factor or NWV Factor	[D] or Line 31 Col [D] or NWV Factor	Other - WW GMC Factor	[L] for Mohave or [N] for Agua Fria
E6	Comparative Departmental Statements for Operating Income Sheet	Revenue - Direct Other -Arizona or 4-Factor or NWV Factor	[I] or Line 31 Col [I] or NWV Factor	Other - WW 3-Factor Other - WW 3-Factor Other - WW 3-Factor	[K] for Mohave or [M] for Agua Fria [K] for Mohave or [M] for Agua Fria [K] for Mohave or [M] for Agua Fria

* in 4-factor for 2015 .xlsx file
** Note 100% 7H expenses are allocated to the NWV District
*** Note that 100% of E&Y expenses allocated to Agua Fria and Mohave

Heppenstall Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
BOB BURNS
TOM FORESE
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF
EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT FAIR
VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR CHANGES IN ITS
RATES AND CHARGES BASED THEREON
FOR UTILITY SERVICE BY ITS AGUA FRIA,
ANTHEM, MOHAVE, SUN CITY, AND SUN
CITY WEST WASTEWATER DISTRICTS AND
FOR CONSIDERATION OF CONSOLIDATION
AND DE-CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
CONSTANCE E. HEPPENSTALL
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

Page ii

**DIRECT TESTIMONY
OF
CONSTANCE E. HEPPENSTALL
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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1 **EXECUTIVE SUMMARY**

2 Constance E. Heppenstall testifies as follows:

3 The purpose of my testimony is to explain the cost of service and rate design studies prepared for
4 each of the wastewater operating districts submitted in this case. I will also propose a
5 consolidated rate for all the operating districts combined. The purpose of the cost allocation
6 studies is to determine and allocate the total districts' cost of service to the several customer
7 service classifications served by Agua Fria, Anthem, Mohave, Sun City, and Sun City West
8 Wastewater Districts. In addition, I have prepared cost of service studies for the deconsolidation
9 of Mohave Wastewater into the subdistricts of Wishing Well Wastewater and Gateway
10 Wastewater Districts and Agua Fria Wastewater into the subdistricts of Russell Ranch, and
11 Verrado with the North East Agua Fria area (Corte Bella, Cross River, Rancho Silverado, Rio
12 Sierra, Dos Rios, Rancho Cabrillo and Coldwater Ranch) combined with the Sun City West
13 Wastewater District. The studies provide a basis for determining the extent to which the
14 revenues to be derived from each customer classification are commensurate with the cost of
15 serving that classification, within each district and subdistrict.

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE NUMBER.

A. My name is Constance E. Heppenstall. My business address is 1010 Adams Avenue, Audubon, PA 19403. My telephone number is (610) 650-8101.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Gannett Fleming Valuation and Rate Consultants, LLC ("Gannett Fleming") as Project Manager for Rate Studies.

Q. PLEASE DESCRIBE YOUR POSITION WITH GANNETT FLEMING AND BRIEFLY STATE YOUR GENERAL DUTIES AND RESPONSIBILITIES.

A. As a Project Manager, my duties and responsibilities include the preparation of accounting and financial data for revenue requirements, the allocation of cost of service to customer classifications, and the design of customer rates in support of public utility rate filings.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I have a Bachelor of Arts Degree in Economics from the University of Virginia, Charlottesville, Virginia and a Master's of Science in Industrial Administration from the Carnegie-Mellon University's Tepper School of Business, Pittsburgh, Pennsylvania.

Q. WOULD YOU PLEASE DESCRIBE YOUR PROFESSIONAL AFFILIATIONS?

A. I am a member of the American Water Works Association, National Association of Water Companies and a member of the Pennsylvania Municipal Authorities Association.

Q. BRIEFLY DESCRIBE YOUR WORK EXPERIENCE.

A. I joined the Valuation and Rates Division of Gannett Fleming, Inc. (as previously named) in August 2006, as a Rate Analyst. Prior to my employment at Gannett Fleming, Inc., I

1 was a Vice President of PriMuni, LLP where I developed financial analyses to test
2 proprietary software in order to ensure its pricing accuracy in accordance with securities
3 industry's conventions. From 1987 to 2001, I was employed by Commonwealth
4 Securities and Investments, Inc. as a public finance professional where I created and
5 implemented financial models for public finance clients in order to create debt structures
6 to meet clients' needs. From 1986 to 1987, I was a public finance associate with Mellon
7 Capital Markets.

8 **Q. HAVE YOU PRESENTED TESTIMONY IN RATE PROCEEDINGS BEFORE A**
9 **REGULATORY AGENCY?**

10 A. Yes, I have testified before the Pennsylvania Public Utility Commission, the Arizona
11 Corporation Commission ("ACC" or "Commission") and the Kentucky Public Service
12 Commission.

13 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

14 A. On behalf of EPCOR Water Arizona Inc. ("EWAZ" or the "Company"). EWAZ is
15 seeking a determination of its fair value rate base ("FVRB") and the setting of rates and
16 charges for utility service.

17 **II. PURPOSE OF TESTIMONY**

18 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.**

19 A. Please refer to the Executive Summary, which precedes my testimony.

20 **III. SPONSORED SCHEDULES**

21 **Q. PLEASE IDENTIFY THE SCHEDULES YOU ARE SPONSORING.**

22 A. I am sponsoring the following schedules for the Company, all of which were either
23 prepared by me or prepared under my direct supervision:

- Schedule G-1 – Cost of Service Summary-Present Rates
- Schedule G-2 – Cost of Service Summary-Proposed Rates
- Schedule G-3 – Rate Base Allocation to Classes of Service
- Schedule G-4 – Expense Allocation to Classes of Service
- Schedule G-5 – Rate Base by Function
- Schedule G-6 – Cost of Service by Function
- Schedule G-7 – Factors for Allocating Cost of Service to Cost Functions and Customer Class
- Schedule G-8 – Comparison of Cost of Service with Revenues under Present and Proposed Rates
- Schedule G-9 – Allocation of Total Cost of service by Cost Function to Customer Classifications
- Schedule H-1 – Summary of Revenues by Customer Classification-Present and Proposed Rates
- Schedule H-2 – Analysis of Revenue by Detailed Class
- Schedule H-3 – Changes in Representative Rate Schedules
- Schedule H-4 – Typical Bill Analysis
- Schedule H-5 – Bill Count

IV. COST OF SERVICE

Q. WHAT METHOD OF COST ALLOCATION WAS USED IN THE STUDIES THAT YOU PERFORMED FOR THIS PROCEEDING?

1 A. I used the Commodity Demand Method which is described in AWWA Manual M1,
2 "Principles of Water Rates, Fees and Charges" published in 2012 and prior editions of the
3 manual.

4 **Q. PLEASE BRIEFLY DESCRIBE THE COMMODITY DEMAND METHOD.**

5 A. The commodity demand method allocates each item of the cost of providing wastewater
6 service to the several cost functions – commodity, demand, which is further separated
7 into maximum day and maximum hour costs, customer facilities, and customer
8 accounting functions. These functional costs are then allocated to the several customer
9 classifications served by the system.

10 Commodity costs are those that vary directly with the volume of wastewater flows
11 treated. Typical commodity costs include the use of power and chemicals purchased to
12 treat and pump wastewater through the collection system.

13 Demand costs include operating and capital costs associated with facilities that
14 provide peak demands on the system. These facilities include collection mains, treatment
15 and disposal systems. Demand costs are further separated into those facilities serving a
16 maximum day function and those serving a maximum hour function.

17 Customer facilities' costs are those associated with collecting wastewater from
18 each customer at the point of the customer's connection to the system or the service line.

19 Customer accounting costs are those associated with billing and customer
20 accounting and collections.

21 The functional costs are then allocated to customer classifications based on each
22 classification's use of the commodities and facilities.

1 **Q. PLEASE DESCRIBE THE CONTENTS OF YOUR EXHIBITS.**

2 A. A cost of service allocation and rate design study was conducted for each operating
3 district and subdistrict. Each study was prepared in response to Schedules G-1 through
4 G-7 of the Commission's filing requirements which I sponsor. Each study used the test
5 year revenue requirements developed by the Company in Schedules A through F and the
6 billing determinants in Schedule H, which I sponsor.

7 For each district, costs were allocated to each of the cost functions described
8 earlier and then to the residential, commercial, and other public authority classifications
9 and for the Anthem District, the bulk customer class.

10 **Q. PLEASE DESCRIBE EACH OF THE SCHEDULES IN YOUR EXHIBITS.**

11 A. I will use the Anthem Wastewater District study and the test period revenue requirements
12 to describe each of the schedules.

13 Schedule G-5 - Distribution of Rate Base by Function allocates the total original
14 cost rate base by account to the several cost functions. The source of the utility plant in
15 service by account and other rate base elements was taken from Schedules B-1 and B-2
16 prepared by the Company. The amount of rate base by account shown in column 3 was
17 allocated to the several cost functions using the allocation factors referenced in column 2.
18 The allocation factors were developed in Schedule G-7, which I will describe later.

19 The results of the allocated rate base to cost functions are allocated to customer
20 classifications on Schedule G-3 - Rate Base Allocation to Classes of Service. The rate
21 base by function in column 3 is allocated to classes using the allocation factors referenced

1 in column 2. The allocation factors were developed in Schedule G-7, which I will
2 describe later.

3 Schedules G-4 and G-6, are similar to Schedules G-3 and G-5. Schedule G-6 -
4 Cost of Service by Function allocates operation and maintenance expenses, depreciation
5 expense and taxes to cost functions in the same manner as the rate base allocation.
6 Schedule G-4 - Expense Allocation to Classes of Service allocates the total expenses by
7 function to customer classifications. The detailed cost of service used in Schedules G-4
8 and G-6 was taken from Schedules C-1 and C-2 prepared by the Company.

9 Schedule G-7 - Factors for Allocating Cost of Service to Cost Functions and
10 Customer Class, describes the basis for allocating the cost of service by function to
11 customer classifications. Factor A, on page 2 of 4 of Schedule G-7, allocates commodity
12 costs based on the average daily flow of each classification. Factors B and C, on page 2
13 of 4 of Schedule G-7, allocate Maximum Day and Hour Demand costs to classes based
14 on each classes' estimated peak day and hour demands. Factor D, on page 3 of 4 of
15 Schedule G-7, allocates services costs to classes based on the relative capacity of
16 services. Factor E, on pages 3 and 4 of 4 of Schedule G-7, allocates customer accounting
17 to classes based on the number of customers.

18 The factors used to allocate the cost of service to cost functions in Schedules G-5
19 and G-6 are presented on page 1 of 4 of Schedule G-7. Factors 1 through 5, allocate costs
20 directly to the appropriate cost function. Factors 6 through 11 are composite factors
21 which are developed internally based on the results of allocating other costs.

1 Schedule G-2 - Cost of Service Summary-Proposed Rates sets forth the rate of
2 return and relative rate of return by classification under proposed rate revenues. Lines 4
3 and 10 of Schedule G-2 are brought forward from Schedules G-3 and G-4. Schedule G-
4 1 - Cost of Service Summary-Present Rates is calculated in a similar manner using
5 revenues under present rates.

6 Schedule G-8 – Comparison of Cost of Service with Revenue under Present and
7 Proposed Rates provides a comparison of the results of the cost of service allocation
8 study with revenues under present and proposed rates for each classification. The cost of
9 service by classification in column 2 was developed on Schedule G-9 – Allocation of
10 Total Cost of Service by Cost Function to Customer Classes. The revenues under present
11 and proposed rates are shown in columns 4 and 6 which are brought forward from
12 Schedules G-1 and G-2. A comparison of the relative cost and revenue responsibility can
13 be performed by comparing the percent of total in columns 3, 5, and 7 of the schedule.
14 The increase in revenue and the percentage increase are shown in columns 8 and 9.

15 **Q. DID YOU TREAT THE BULK CUSTOMER CLASS DIFFERENTLY THAN**
16 **OTHER CLASSES IN THE COST OF SERVICE STUDY?**

17 **A.** Yes. The flow of the Bulk Customer class under annualized present rates and under
18 proposed rates are based on the customer's 2015 flume flow or actual measured
19 wastewater flow including infiltration and inflow. This is a billing change as the revenue
20 for this customer class under present rates is based on water usage. The flow for the
21 residential and commercial customers in the cost of service studies is based on water
22 usage and does not include infiltration and inflow. Therefore in the cost of service

Page 8 of 12

1 studies that include the Bulk Customer class (Anthem and the Consolidated cost of
2 service studies), the flow for the residential and commercial class is adjusted by adding
3 an additional 10% to their flow to account for an estimated infiltration and inflow that
4 would be present in the Bulk Customer flow and not in the flow recorded for the
5 residential and commercial customer classes.

6 **Q. WHAT OTHER CHANGES WERE MADE IN THE COST OF SERVICE**
7 **STUDIES FOR THE BULK CUSTOMER CLASS?**

8 A. The Bulk Customer class does not use the small mains included in the collection system.
9 Therefore, these costs related to small mains were not allocated to the Bulk Customer
10 class. This was accomplished by eliminating the Bulk Customer usage from Factor C,
11 Allocation of Maximum Hour Demand Costs described above.

12 **Q. ARE THERE ANY OTHER CHANGES MADE IN YOUR COST OF SERVICE**
13 **STUDIES FOR THE BULK CUSTOMER CLASS?**

14 A. No.

15 **V. PROPOSED RATE DESIGN (H SCHEDULES)**

16 **Q. PLEASE DESCRIBE SCHEDULE H-1.**

17 A. Schedule H-1 – Summary of Revenues by Customer Classification shows the revenue
18 under Present and Proposed Rates in the test year. Also shown is the Annualized Present
19 Rate Revenue which is the calculation of the adjustment to revenue to annualize the
20 average number of customers during the test year and any rate changes during the test
21 year. Schedule H-1 also shows the amount that would be generated by the proposed
22 increase in wastewater rates based on the billing determinants used in the Annualized
23 Present Rates revenue.

1 **Q. WOULD YOU NOW DIRECT YOUR ATTENTION TO SCHEDULE H-2 -**
2 **ANALYSIS OF REVENUES BY DETAILED CLASS AND SUMMARIZE THAT**
3 **SCHEDULE?**

4 A. Schedule H-2 – Analysis of Revenues by Detailed Class is an analysis of revenue at
5 present rates, annualized present rates and proposed rates by rate schedule. It also
6 presents the proposed revenue increase in dollar amount and percentage. The average
7 number of customers determined from the bill count is also shown by rate schedule and
8 in total. The rate schedules show the customer class on this schedule as well.

9 **Q. PLEASE TURN TO SCHEDULE H-3 – CHANGES IN REPRESENTATIVE**
10 **RATE SCHEDULES AND DESCRIBE THAT SCHEDULE.**

11 A. Schedule H-3 – Changes in Representative Rate Schedules is a 3-page schedule that
12 presents a comparison of present and proposed rates highlighting the proposed changes to
13 the usage charge and the commodity charge on page 1. It shows the existing usage
14 charges by rate schedule, and the present and proposed volume charges, where
15 applicable.

16 The schedule also delineates the existing Service Charges and summarizes the
17 proposed changes to those service charges. The proposed changes to these Service
18 Charges are discussed in testimony submitted by Ms. Sandra L. Murrey.

19 **Q. PLEASE EXPLAIN SCHEDULE H-4 – TYPICAL BILL ANALYSIS.**

20 A. Schedule H-4 – Typical Bill Analysis presents the typical bill analysis for each of the rate
21 schedules shown in Schedule H-3. The calculations contained on these schedules
22 compare present rates, proposed rates and the mathematical calculation of
23 increase/decrease at various consumption levels for varying quantities depending on the
24 rate schedule and the usage patterns of customers on that schedule.

1 **Q. PLEASE DISCUSS SCHEDULE H-5 – BILL COUNT.**

2 A. Schedule H-5 – Bill Count is a set of billing determinants for each rate schedule. The bill
3 count summarizes by usage block the number of bills issued during the year that
4 contained usage at that level of consumption. For rate schedules that are billed on
5 number of units as opposed to usage, the number of bills with zero usage is equivalent to
6 the number of units billed.

7 **Q. WOULD YOU NOW TURN TO SCHEDULE H-6 AND EXPLAIN THAT**
8 **SCHEDULE?**

9 A. Schedule H-6 is representative of the Company's existing tariffs and has been revised to
10 reflect the change in the monthly service charges and commodity charges that the
11 Company is proposing in this case and are discussed in greater detail in the section on
12 Rate Design below. Please refer to the testimony submitted by Ms. Sandra L. Murrey for
13 additional detail regarding Schedule H-6.

14
15 **Q. PLEASE DESCRIBE THE CURRENT BASIC WASTEWATER TARIFFS.**

16 A. The residential wastewater rates are flat rates based on individual meter sizes. The
17 commercial wastewater rates for Agua Fria, Anthem, Sun City and Sun City West
18 Wastewater Districts include a basic customer charge and a single block consumption
19 charge that applies to water usage up to a certain cap depending on customer
20 classification and meter size. Customers with meters larger than two-inches are charged
21 a customer charge and a volumetric charge based on total usage, with no cap. In Mohave
22 Wastewater District, the rates are primarily flat rate charges per month except for three
23 commercial customers that have metered usage.

1 **Q. PLEASE DESCRIBE THE DESIGN OF THE PROPOSED RATE STRUCTURE**
2 **FOR THE DISTRICTS ON A STAND-ALONE BASIS.**

3 A. For the stand-alone districts of Agua Fria, Anthem, Mohave, Sun City and Sun City
4 West Wastewater Districts, as well as the Mohave subdistricts of Wishing Well
5 Wastewater and Gateway Wastewater Districts and Agua Fria Wastewater subdistricts of
6 Russell Ranch, and Verrado (excluding the North East Agua Fria subdistrict consisting of
7 Corte Bella, Cross River, Rancho Silverado, Rio Sierra, Dos Rios, Rancho
8 Cabrillo and Coldwater Ranch), the fixed charges and volumetric charges were
9 increased based on the results of the cost of service study by customer class so that the
10 revenue from each class equaled or moved toward cost of service for the class.

11 **Q. PLEASE DESCRIBE THE GUIDELINES FROM COMPANY MANAGEMENT**
12 **FOR THE CONSOLIDATED RATES.**

13 A. The Company instructed me to consider the following: 1) propose flat rates for all
14 residential customers; 2) move all commercial customers to the same block rate structure
15 by meter size; 3) move the revenue by class toward the cost of service by class; and 4)
16 create a phase in or steps to bring the wastewater districts to a consolidated rate.

17 **Q. DOES THE PROPOSED CONSOLIDATED RATE STRUCTURE COMPLY**
18 **WITH THE GUIDELINES PROVIDED TO YOU?**

19 A. Yes, it does. All residential customers will now pay a flat rate for sewer service, the
20 commercial customers in Agua Fria, Anthem and Mohave were moved to the block
21 structure found in Sun City and Sun City West, and the revenues under proposed rates
22 generally move toward the indicated cost of service by classification for the

1 consolidation. A stepped increase is proposed that maintains the total revenue by class
2 under full consolidation but moves to consolidated rates in three steps for the residential
3 class, and two steps for the commercial class.

4 **Q. HAVE YOU PREPARED A COMPARISON OF PRESENT AND PROPOSED**
5 **RATES AND A PROOF OF REVENUE?**

6 A. I prepared the Schedule H series which show the present and proposed rates and the proof
7 of revenue for each individual district, the deconsolidated areas of Agua Fria and Mohave
8 Wastewater as well as on a consolidated basis. Schedule H-3 was also prepared for the
9 proposed phase-in of rates on a consolidated basis.

10 **Q. DOES THE COMPANY PROPOSED ANY ADDITIONAL RATE CHANGES IN**
11 **THE FILING?**

12 A. Yes. In each district, the Company is proposing to add a low income rate for customers
13 who qualify. The savings to low income users would be a reduction of \$5.00 from the
14 fixed customer charge.

15 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

16 A. Yes.
17

Ahern Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
BOB BURNS
TOM FORESE
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF
EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT FAIR
VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR
INCREASES/DECREASES IN ITS RATES AND
CHARGES BASED THEREON FOR UTILITY
SERVICE BY ITS AGUA FRIA, ANTHEM,
MOHAVE, SUN CITY, AND SUN CITY WEST
WASTEWATER DISTRICTS AND FOR
CONSIDERATION OF CONSOLIDATION AND
DE-CONSOLIDATION PROPOSALS.

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
PAULINE M. AHERN, CRRA
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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1 **EXECUTIVE SUMMARY**

2 My testimony is on behalf of the Applicant EPCOR Water Arizona Inc.
3 ("EWAZ" or the "Company") relative to the common equity cost rate that would afford
4 EWAZ an opportunity to earn a fair return on its jurisdictional wastewater rate base. My
5 testimony concludes with an estimate of the fair value rate of return of 1.35% to be
6 applied to the fair value increment of EWAZ wastewater rate base.

7 My recommended common equity cost rate results from the application of
8 market-based cost of common equity models, the Discounted Cash Flow ("DCF")
9 approach, the Risk Premium Model ("RPM") and the Capital Asset Pricing Model
10 ("CAPM"), to the market data of the proxy group of eight water and wastewater
11 companies of similar risk to that of EWAZ. Since EWAZ's common stock is not
12 publicly traded, it is necessary to rely upon the market data of a proxy group of water
13 companies of similar, but not necessarily identical, risk in determining a recommended
14 common equity cost rate. Using the market data of a proxy group of relatively similar
15 companies as well as using multiple common equity cost rate models adds reliability to
16 the informed expert judgment applied in arriving at a recommended common equity cost
17 rate.

18 The results derived from each are as follows:

	<u>Water Proxy Group</u>
Discounted Cash Flow Model	8.31%
Risk Premium Model	10.75%
Capital Asset Pricing Model	<u>10.10%</u>
Indicated Common Equity Cost Rate Before Adjustment	10.15%
Credit Risk Adjustment	0.20%
Business Risk Adjustment	<u>0.30%</u>
Indicated Common Equity Cost Rate After Adjustment	10.65%
Recommended Common Equity Cost Rate	<u>10.65%</u>

After reviewing the cost rates based upon these models, I conclude that a common equity cost rate of 10.15% is indicated before any adjustment for EWAZ's greater business risk relative to the Water Proxy Group. I adjusted the indicated common equity cost rate upward by 0.20% and 0.30% to reflect EWAZ's increased credit and business risks, respectively. The details of these adjustments will be discussed below. After adjustment, the indicated credit and business risk-adjusted common equity cost rate is 10.65%, which in my opinion is fair and reasonable, if not conservative.

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1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.**

3 A. My name is Pauline M. Ahern. I am a Partner with Sussex Economic Advisors, LLC.
4 My business address is 1900 West Park Road, Suite 250, Westborough, MA 01581. My
5 mailing address is 3000 Atrium Way, Suite 241, Mount Laurel, NJ 08054.

6 **Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE AND**
7 **EDUCATIONAL BACKGROUND.**

8 A. I have offered expert testimony on behalf of investor-owned utilities before 30 state
9 regulatory commissions in the United States and Canada on rate of return issues,
10 including but not limited to common equity cost rates, fair rate of return, capital structure
11 issues, relative investment risk and credit quality issues. I am a graduate of Clark
12 University where I was awarded a Bachelor of Arts degree with honors in Economics. I
13 was also awarded a Master of Business Administration with high honors and a
14 concentration in finance by Rutgers University.

15 On behalf of the American Gas Association ("A.G.A."), I calculate the A.G.A.
16 Gas Index, which serves as the benchmark against which the performance of the
17 American Gas Index Fund ("AGIF") is measured monthly. The A.G.A. Gas Index and
18 AGIF are a market capitalization weighted index and mutual fund, respectively,
19 comprised of the common stocks of the publicly traded corporate members of the A.G.A.

20 In addition, I am a member of the Society of Utility and Regulatory Financial
21 Analysts ("SURFA") and currently serve on its Board of Directors, having previously
22 served two terms as President, from 2006 – 2008 and 2008 – 2010 and as its

1 Secretary/Treasurer from 2004 – 2006. In 1992, I was awarded the professional
2 designation "Certified Rate of Return Analyst" ("CRRA") by SURFA, which is based
3 upon education, experience and the successful completion of a comprehensive written
4 examination.

5 Lastly, I am an associate member of the National Association of Water
6 Companies, serving on its Finance/Accounting/Taxation and Rates and Regulation
7 Committees; a member of the Advisory Council of the Financial Research Institute –
8 University of Missouri – Robert J. Trulaske, Sr. College of Business; a member of the
9 American Finance and Financial Management Associations; and a member of the
10 A.G.A.'s State Affairs Committee.

11 The details of my educational background, expert witness appearances and
12 presentations I have given and articles I have co-authored are shown in **Exhibit PMA-**
13 **DT1.**

14 **II. PURPOSE OF TESTIMONY**

15 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.**

16 **A.** The purpose is to provide testimony on behalf of Applicant EPCOR Water Arizona Inc.
17 ("EWAZ" or the "Company") relative to the common equity cost rate that would afford
18 EWAZ an opportunity to earn a fair return on its jurisdictional wastewater rate base.

19 **Q. HAVE YOU PREPARED AN EXHIBIT THAT SUPPORTS YOUR**
20 **RECOMMENDED COMMON EQUITY COST RATE?**

21 **A.** Yes. It has been designated as **Exhibit PMA-DT2¹** and contains Schedules 1 through 7.

¹ All Schedule references in this testimony will be from **Exhibit PMA-DT2.**

1 **Q. WHAT IS YOUR RECOMMENDED COMMON EQUITY COST RATE?**

2 A. I recommend that the Arizona Corporation Commission ("ACC" or "the Commission")
3 authorize the Company an opportunity to earn a common equity cost rate of 10.65% on
4 the common equity portion of its jurisdictional rate base.

5 **III. SUMMARY**

6 **Q. PLEASE SUMMARIZE YOUR RECOMMENDED COMMON EQUITY COST**
7 **RATE.**

8 A. My recommended common equity cost rate of 10.65% is summarized on Schedule 1.
9 Because EWAZ's common stock is not publicly traded, a market-based common equity
10 cost rate cannot be determined directly for EWAZ. Consequently, I have assessed the
11 market-based common equity cost rates of companies of relatively similar, but not
12 necessarily identical risk, *i.e.*, a proxy group, for insight into a recommended common
13 equity cost rate applicable to EWAZ. Using companies of relatively similar risk as
14 proxies is consistent with the principles of fair rate of return established in the *Hope*² and
15 *Bluefield*³ cases, adding reliability to the informed expert judgment necessary to arrive at
16 a recommended common equity cost rate. However, no proxy group is identical in risk to
17 any single entity. Accordingly, an assessment of relative risk between EWAZ and the
18 Water Proxy Group must be made to determine whether any adjustments to the Water
19 Proxy Group's indicated common equity cost rate are necessary.

20 In determining my recommended common equity cost rate, I applied several well-
21 recognized cost of common equity models, *i.e.*, the Discounted Cash Flow Model

² *Fed. Power Comm'n et al. v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

³ *Bluefield Water Works Improvement Co. v. Pub. Serv. Comm'n et al.*, 262 U.S. 679 (1923).

1 (“DCF”), the Risk Premium Model (“RPM”), and the Capital Asset Pricing Model
2 (“CAPM”) to the market data of a Water Proxy Group whose selection criteria will be
3 discussed below. In addition, I applied the DCF, RPM and CAPM to the market data of a
4 Non-Price Regulated Proxy Group comparable in total risk to the Water Proxy Group
5 whose selection criteria will also be discussed below.

6 The results derived from each are as follows:

7 Table 1
8

	<u>Water Proxy Group</u>
Discounted Cash Flow Model	8.31% ⁴
Risk Premium Model	10.75%
Capital Asset Pricing Model	<u>10.10%</u>
Indicated Common Equity Cost Rate Before Adjustment	10.15%
Credit Risk Adjustment	0.20%
Business Risk Adjustment	<u>0.30%</u>
Indicated Common Equity Cost Rate After Adjustment	10.65%
Recommended Common Equity Cost Rate	<u><u>10.65%</u></u>

9
10 After reviewing the cost rates based upon these models, I conclude that a common
11 equity cost rate of 10.15% is indicated before any adjustment for EWAZ’s greater
12 business risk relative to the Water Proxy Group. In arriving at my common equity cost
13 rate conclusion of 10.15% before risk-adjustment, I relied upon the midpoint of the upper
14 half of the range of 8.31% - 10.75%, 10.14% rounded to 10.15%. I did so because the
15 DCF result is clearly an outlier. As discussed in detail below, the DCF has a tendency to

⁴ As discussed later in my testimony, the current DCF model understates the required return on common equity by as much as 495 basis points due to a highly unusual and, in all likelihood temporary, convergence of historically anomalous market conditions. Accordingly, the results of that model should be given only very limited weight in deriving a reasonable return on equity in this proceeding.

1 incorrectly specify the investor required return rate when market-to-book ratios differ
2 from unity. This tendency is exacerbated in the current capital market environment, also
3 discussed in detail below, which is dominated by an artificially low interest rate
4 environment engineered by the Federal Reserve Bank ("Fed") which not only affects the
5 level of interest rates but the measurement of the cost of common equity. Although the
6 current capital market environment as well as the low level of interest rates affects the
7 results of all common equity cost rate models, including the RPM and CAPM, proper
8 applications of those models, i.e., the use of expected or projected bond yields / risk free
9 rates and inclusion of expected or projected equity risk premiums mitigates those effects.

10 As discussed below, the use of multiple models is supported in the financial
11 literature because no single model produces the definitive common equity cost rate
12 estimate. Hence, in the current proceeding, I have relied upon the upper half of the range
13 of indicated common equity cost rate estimates for the Water Proxy Group, before
14 adjustment, which implicitly gives greater, though not explicit quantitative weight, to the
15 CAPM and RPM which in my opinion, when properly applied, provide a better estimate
16 of the investor required return given current capital market conditions.

17 I then adjusted the indicated common equity cost rate of 10.15% upward by
18 0.20% and 0.30% to reflect EWAZ's increased credit and business risks, respectively.
19 The details of these adjustments will be discussed below. After adjustment, the indicated
20 credit and business risk-adjusted common equity cost rate is 10.65%, which in my
21 opinion is fair and reasonable, if not conservative.

1 **IV. GENERAL COMMENTS ON CAPITAL MARKET CONDITIONS**

2 **Q. PLEASE DESCRIBE CURRENT CAPITAL MARKET CONDITIONS.**

3 A. Because the models used to estimate the cost of common equity are meant to reflect
4 current and expected capital market conditions, it is important to assess the
5 reasonableness of the results of any model in the context of observable market data. To
6 the extent model assumptions or results are incompatible with such data, judgment must
7 be applied in both the application of methods and in the interpretation of their results.

8 **Central Bank Market Intervention**

9 **Q. PLEASE DISCUSS HOW THE FEDERAL RESERVE BANK'S MARKET**
10 **INTERVENTION AFFECTS THE ESTIMATION OF THE COST OF CAPITAL.**

11 A. Much has been reported about the Fed's market intervention since 2007 and the effect of
12 that intervention on interest rates. Aside from that effect, an important consideration is
13 the extent to which those actions have obscured the long-standing relationships among
14 financial metrics sometimes used in assessing the cost of common equity.

15 Beginning in 2008, the Fed proceeded on a steady path of initiatives designed to
16 lower long-term government bond yields. Fed policy actions were intended to put
17 downward pressure on longer-term interest rates by having the Fed take onto its balance
18 sheet some of the duration and prepayment risks that would otherwise have been borne
19 by private investors. Under that policy, "Securities Held Outright" on the Fed's balance
20 sheet increased from approximately \$491 billion at the beginning of October 2008 to
21 approximately \$4.25 trillion by the end of December 2015. In context, the securities held
22 by the Fed represented approximately 3.31% of gross domestic product ("GDP") at the

1 end of September 2008 and rose to approximately 23.43% of GDP at the end of February
2 2016⁵. As such, Fed policy actions have been a significant source of liquidity, and have
3 had a substantial effect on capital markets.

4 As a result of the Fed's accommodative monetary policies, the U.S. stock market
5 has recovered with the S&P 500 rising more than 185.0% from its lows in early March
6 2009. The market's recent volatility in response to the turmoil in the global economy,
7 falling oil prices, and the uncertainty and direction of the Fed's interest rate decisions will
8 have an impact of capital markets, increasing investors' perception of market risk and,
9 hence, their required return on common equity.

10 **Interest Rate Environment**

11 **Q. IS THE MARKET EXPECTING INCREASES IN INTEREST RATES?**

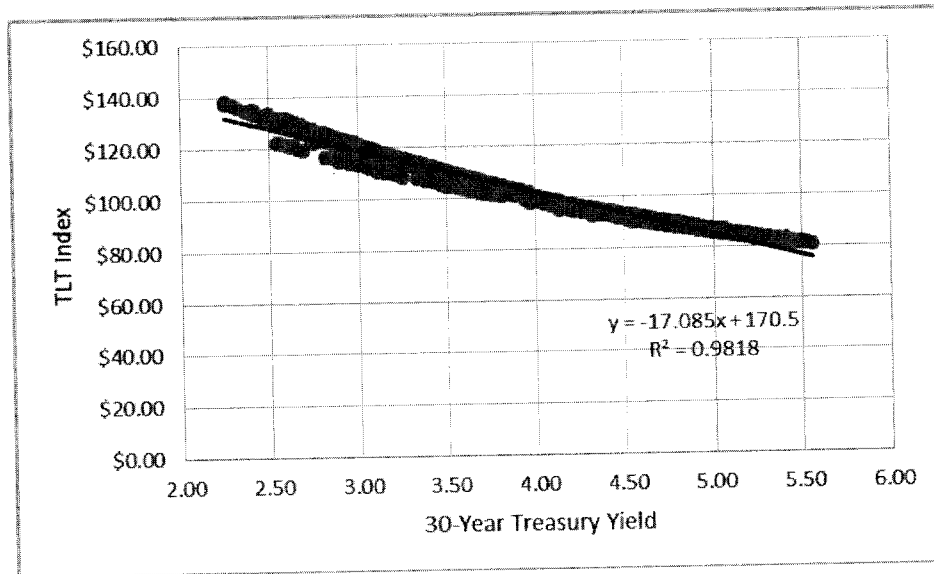
12 A. Yes. The U.S. 30-Year Treasury bond is currently forecasted to yield an average of
13 3.15%⁶ over the six quarters ended with the second quarter of 2017, 4.5% for 2017-2021
14 and 4.8% for 2022-2026⁷ by *Blue Chip Financial Forecasts* ("Blue Chip"). In addition to
15 economists' forecasts, the iShares 20+ year Treasury Bond ("TLT"), an exchange-traded
16 fund of long-term U.S. government bonds, can provide insight into the market's
17 expectations of future interest rate trends. Because the price of bonds is inversely related
18 to interest rates, the TLT has increased in value as interest rates have fallen over time (see
19 Chart 1 below).

5 www.federalreserve.gov / www.bea.gov/national/

6 From *Blue Chip Financial Forecasts*, March 1, 2016. See page 9 of Schedule 5.

7 From *Blue Chip Financial Forecasts*, December 1, 2015. See page 10 of Schedule 5.

Chart 1: TLT Index vs. 30-Year Treasury Yield⁸



The TLT provides a market-based understanding of whether investors expect interest rates to increase or decrease by reviewing the premium they are willing to pay for the option to buy or sell the TLT, at the current market price, in the future. If investors are willing to pay more for the option to sell the TLT in the future (at today's price) than they are willing to pay for the option to buy the TLT (also at today's price) that suggests that on balance, the market perceives a greater prospect of interest rate increases than decreases. Based upon data from NASDAQ, as of January 2016, the option to sell the TLT in January 2018 (the furthest priced option) at the current price is more than twice the value of the option to buy the TLT. Since bond prices fall as interest rates increase, this means that investors perceive a greater likelihood of increases in long-term interest rates than decreases.

Equity Market Volatility

Q. WHAT IS THE MARKET'S CURRENT ASSESSMENT OF EXPECTED VOLATILITY?

A. One measure of the expected volatility, or risk, of the U.S. stock market is the Chicago Board Options Exchange Volatility Index ("VIX") which measures market expectations of near-term volatility in the U.S. stock market implied by near and next-term options on the VIX index. The VIX, sometimes referred to as the "fear index," is a highly visible and often-reported barometer of investor risk sentiments.

Although the VIX is not presented as a percentage, it should be understood as such. Thus, if the VIX stood at 17.00, it would be interpreted as an expected standard deviation in annual returns on the market index of 17.00% over the coming 30 trading days. As Chart 2 notes, since its inception in 1990, the VIX has averaged approximately 19.84, which is relatively close to the long-term average annual standard deviation in returns on the S&P 500 of 20.07%.

Chart 2: VIX Daily Levels and Long-Term Average⁹

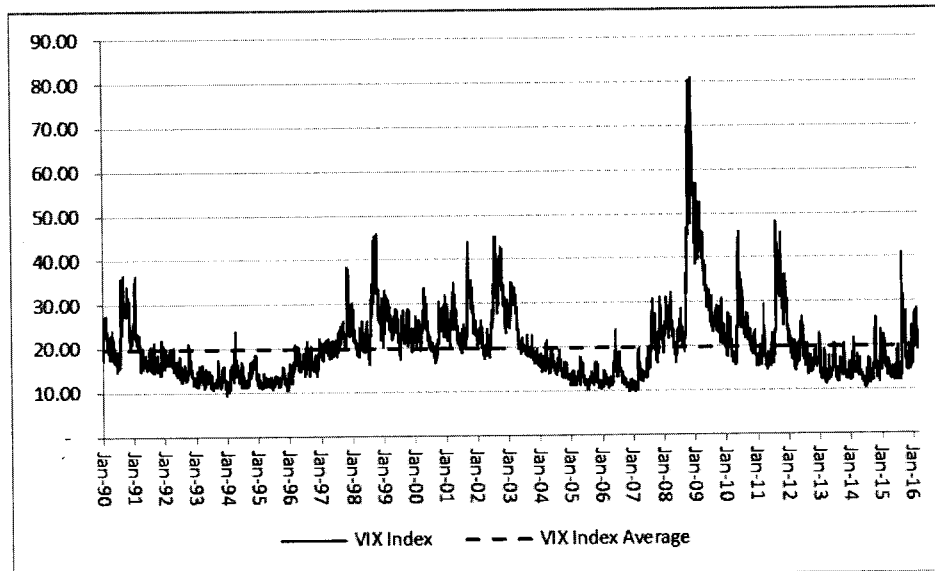
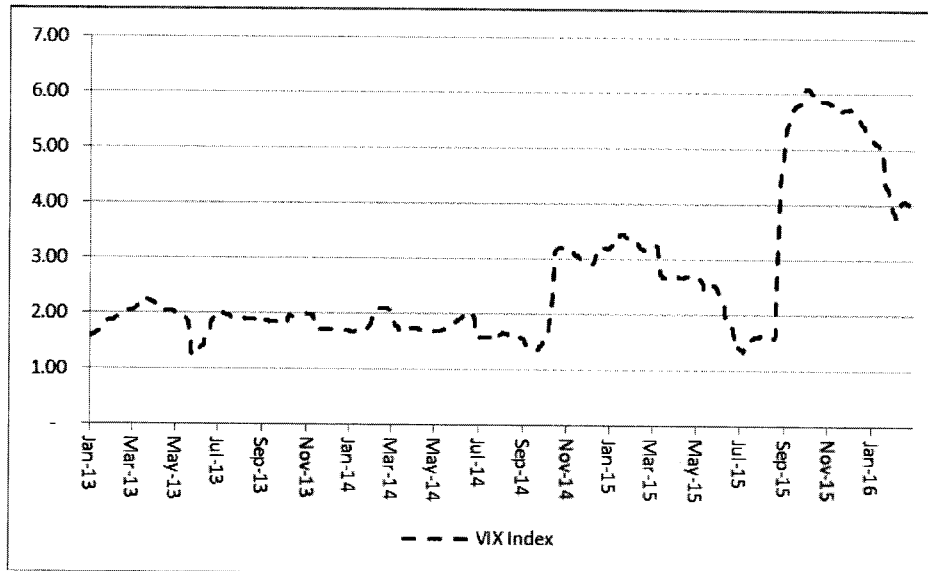


Chart 2 highlights some relevant points. First, the VIX has been at relatively low levels in recent years. Beginning in the latter portion of 2015, however, significant volatility returned in the U.S. stock market. From that broad perspective, equity risk is currently elevated relative to recent historical levels.

A further measure of market uncertainty is the volatility of the VIX itself, or the volatility of volatility, as measured by the standard deviation of the VIX. As Chart 3 (below) notes, both moved in a relatively narrow range during 2013, but since then have increased quite noticeably. Such volatility indicates that although interest rates are still near historical lows in the U.S. market, there remains significant, if not greater, risk to common equity investment in today's markets with investors requiring greater returns to bear that risk, consistent with the basic financial principle of risk and return.

⁹ Source: Bloomberg Financial.

Chart 3: Standard Deviation (100 days) of VIX¹⁰



Just as market intervention by the Fed has reduced interest rates, it has reduced volatility. For example, each time the Fed began to purchase bonds (as evidenced by the increase in "Securities Held Outright" on its balance sheet), volatility subsequently declined. In fact, in September 2012, when the Fed began to purchase long-term securities at a pace of \$85 billion per month, volatility (as measured by the VIX) fell, and through October 2014 remained in a relatively narrow range. The reason is quite straightforward: investors became confident that the Fed would intervene if markets were to become unstable.

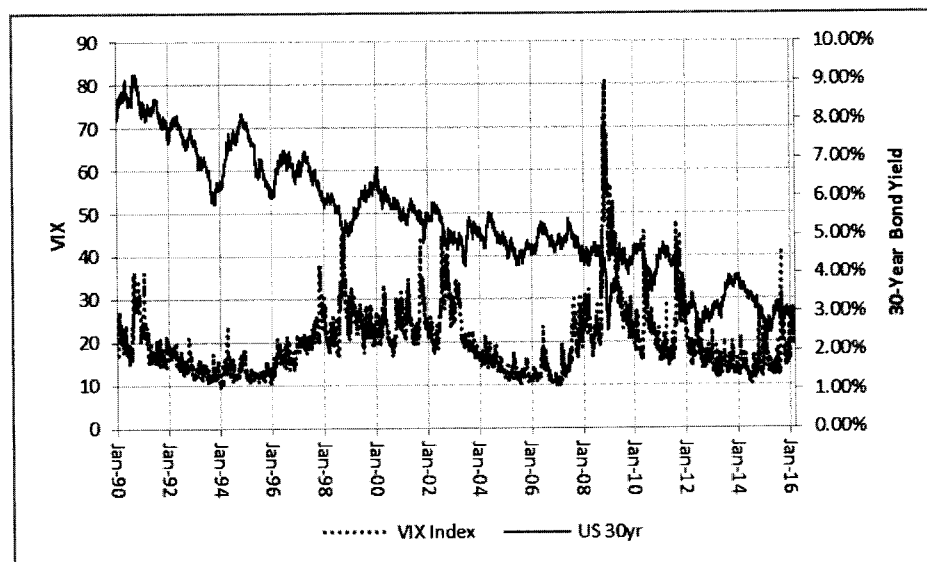
Even with the effect of Fed intervention, periods of increased equity market volatility have been associated with unusually low government bond yields. That relationship makes sense given that investors increasingly focus on capital preservation during turbulent markets. As Chart 4 below demonstrates, when volatility peaks (as

¹⁰

Source: Bloomberg Financial.

1 measured by the VIX), government bond yields fall; because increased demand for safe-
2 haven securities will bid up their price and down their yield.

3 **Chart 4: VIX and U.S. Treasury Yields¹¹**



4
5 The important analytical issue is whether we can infer that risk aversion among
6 debt and equity investors is at a historically low level or lower than it had been in recent
7 years, implying a correspondingly low cost of common equity. Given the negative
8 relationship between the expansion of the Fed's balance sheets and equity market
9 volatility (as measured by the VIX) and in light of the fact that current volatility is
10 considerably greater than prior levels, it is difficult to conclude that fundamental investor
11 risk aversion and investor return requirements are lower than they have been in recent
12 years. In other words, since investors require higher returns for bearing greater risk, given
13 that current market volatility, i.e., risk, is higher than in recent years, investors' required
14 returns must be higher as well.

¹¹ Source: Bloomberg Financial.

1 The low interest rate environment associated with the Fed's intervention may lead
2 some analysts to conclude that current capital costs, including the cost of common equity,
3 are low and will continue to be so. That conclusion, however, only holds true under the
4 hypothesis of Perfectly Competitive Capital Markets ("PCCM") and the classical
5 valuation framework which, under normal economic and capital market conditions,
6 underpin the traditional cost of common equity models. PCCM are capital markets in
7 which no single trader, or "market-mover," would have the power to change the prices of
8 goods or services, including bond and common stock securities. In other words, under
9 the PCCM hypothesis, no single trader would have a significant effect on market prices.

10 Classic valuation theory assumes that investors trade securities rationally with
11 prices reflecting their perceptions of value. Although the Fed has always had the ability
12 to set benchmark interest rates, it has been maintaining below normal rates to stimulate
13 continued economic and capital market recovery. It is therefore reasonable to conclude
14 that the Fed and other central banks are acting as market-movers which has a significant
15 effect on the market prices of both bonds and stocks in all markets where a central bank
16 is maintaining historically low interest rates. The presence of market-movers such as the
17 Fed and other central banks in current capital markets runs counter to the PCCM which is
18 the foundation of traditional cost of common equity models as well as financial market
19 theory.

20 The engineering of interest rates by central banks directly affects both interest rate
21 levels and the measurement of the cost of common equity. In my opinion, therefore, the
22 results of traditional cost of common equity models should be viewed with even greater

1 scrutiny under current economic and capital market conditions. The current and expected
2 interest rate environment, coupled with the Fed's engineering of interest rates suggests
3 that the traditional cost of common equity models'¹² tendency to understate the investor
4 required cost of common equity will be exacerbated. Consequently, the results of these
5 models, including those presented in this testimony, are currently and prospectively
6 particularly conservative estimates, i.e., on the low side, of the investor required rate of
7 return on common equity. Therefore, it cannot be concluded that, in markets where the
8 Fed and other central banks are keeping interest rates artificially and historically low, that
9 interest rate levels indicate less risk and thus lower common equity cost rate estimates.

10 **V. GENERAL PRINCIPLES AND INVESTMENT RISK**

11 **Q. WHAT GENERAL PRINCIPLES HAVE YOU CONSIDERED IN ARRIVING AT**
12 **YOUR RECOMMENDED COMMON EQUITY COST RATE OF 10.65%?**

13 **A.** The cost of common equity is defined as that return which investors require to make an
14 equity investment in a given firm. From the firm's perspective, that required return,
15 whether it is provided to debt or equity investors, has a cost. Individually, we speak of
16 the "cost of debt" and the "cost of equity;" together, they are referred to as the "cost of
17 capital."

18 The cost of capital (including the costs of both debt and equity) is based upon the
19 economic principle of "opportunity cost," meaning that investing in any asset/security
20 implies a forgone opportunity to invest in alternative assets/securities. For any
21 investment to make sense to the investor, its expected return must be at least equal to the

¹² The DCF, RPM and CAPM.

1 return expected on alternative investment opportunities of comparable risk. Because
2 investments with like risks should offer similar returns, the opportunity cost of an
3 investment should equal the return available on an investment of comparable risk.

4 Although both debt and equity have required costs, they differ in certain
5 fundamental ways. Most noticeably, the cost of debt is contractually defined and can be
6 directly observed in the market as the interest rate or yield on debt securities. The cost of
7 equity, on the other hand, is neither directly observable in the market nor has a
8 contractual obligation. Rather, because common equity investors have a claim on a
9 firm's cash flows only after debt holders are paid, the uncertainty (or risk) associated
10 with those residual cash flows determines the cost of equity. Because common equity
11 investors bear this "residual risk," they require higher returns than debt holders. In that
12 basic sense, common equity and debt investors are distinct: they invest in different
13 securities; face different risks; and require different returns.

14 The cost of capital, specifically the cost of common equity or the investor
15 required return, is also an economic and financial concept which refers to the *ex-ante*,¹³
16 or the expected return on an investment at the market value of the publicly traded
17 common shares of a corporation. According to the basic financial principle of risk and
18 return, the investor required return on investment is a function of the level of investor
19 perceived risk as reflected in the market prices paid. The higher/lower the investor
20 perceived risk, the higher/lower the investor required return. The investor required return

¹³

Before the fact.

1 is also forward-looking, or expectational, as is the return which the investor expects to
2 receive in the future for investing capital today.

3 In unregulated industries, the competition of the marketplace is the principal
4 determinant of the price of products or services. For regulated public utilities, regulation
5 must act as a substitute for marketplace competition. A sufficient level of earnings are
6 required to assure that the utility can: 1) fulfill its obligations to the public while
7 providing safe and reliable service at all times; 2) maintain the integrity of presently
8 invested capital through future reinvestment; and 3) attract needed new capital at a
9 reasonable cost in competition with other firms of comparable risk. This is consistent
10 with the previously noted fair rate of return standards established by the U.S. Supreme
11 Court in the *Hope* and *Bluefield* cases.

12 In rate base/rate of return regulation, the authorized (allowed) return on common
13 equity is defined as the investor required return. In turn, the investor required return is
14 defined as the return required by the investor on the funds invested in the publicly traded
15 common stocks of companies. As stated previously, the cost of common equity is not
16 directly observable in the capital markets since there is no contractual basis or obligation
17 on the part of a firm to provide a return to its common shareholders, unlike the
18 contractual coupon or interest rate, on its debt obligations. Therefore, the cost of common
19 equity must be estimated from market (economic and financial) data, using financial
20 models developed for that purpose, such as the CAPM, DCF and RPM. Consequently,
21 marketplace data must be relied upon in assessing a common equity cost rate appropriate
22 for ratemaking purposes. Therefore, my recommended common equity cost rate is based

1 upon the marketplace data of a proxy group of utilities that are as similar in risk as
2 possible to EWAZ based upon selection criteria that will be discussed later in this
3 testimony.

4 Quantitative financial models produce a range of results from which the market,
5 or investor, required return must be estimated. That estimation must be based upon a
6 comprehensive review of relevant data and information, including capital market
7 conditions, and does not necessarily lend itself to a strict mathematical estimation. The
8 key consideration in arriving at a recommended common equity cost rate is to ensure that
9 the overall analysis reasonably reflects investors' expectations in light of capital markets
10 in general, and, the investment risk of the subject company (in the context of the proxy
11 companies) in particular.

12 Since empirical financial models for determining the cost of common equity are
13 subject to limiting assumptions or other constraints, most finance texts recommend using
14 multiple approaches to estimate the cost of common equity. As a practical matter, no
15 individual model is more reliable than all others under all market conditions. Therefore,
16 it is both prudent and appropriate to use multiple methodologies in order to mitigate the
17 effects of limiting assumptions and inputs associated with any single approach. As such,
18 I have considered the results of multiple cost of common equity cost rate models in
19 arriving at my recommended common equity cost rate for EWAZ.

20 That the use of multiple common equity cost rate models adds reliability to the
21 estimation of the investor-required return is well supported in the academic literature.

22 Morin states:

Each methodology requires the exercise of considerable judgment on the reasonableness of the assumptions underlying the methodology and on the reasonableness of the proxies used to validate a theory. The inability of the DCF model to account for changes in relative market valuation, discussed below, is a vivid example of the potential shortcomings of the DCF model when applied to a given company. Similarly, the inability of the CAPM to account for variables that affect security returns other than beta tarnishes its use.

No one individual method provides the necessary level of precision for determining a fair return, but each method provides useful evidence to facilitate the exercise of an informed judgment. Reliance on any single method or preset formula is inappropriate when dealing with investor expectations because of possible measurement difficulties and vagaries in individual companies' market data.¹⁴ (emphasis added)

* * *

The financial literature supports the use of multiple methods. Professor Eugene Brigham, a widely respected scholar and finance academician, assert^{s1}(footnote omitted)

Three methods typically are used: (1) the Capital Asset Pricing Model (CAPM), (2) the discounted cash flow (DCF) method, and (3) the bond-yield-plus-risk-premium approach. These methods are not mutually exclusive – no method dominates the others, and all are subject to error when used in practice. Therefore, when faced with the task of estimating a company's cost of equity, we generally use all three methods and then choose among them on the basis of our confidence in the data used for each in the specific case at hand.

Another prominent finance scholar, Professor Stewart Myers, in an early pioneering article on regulatory finance, stated^(footnote omitted):

Use more than one model when you can. Because estimating the opportunity cost of capital is difficult, only a fool throws away useful information. That means you should not use any one model or measure mechanically and exclusively. Beta is helpful as one tool in a kit, to be used in parallel with DCF models or other techniques for interpreting capital market data. (emphasis added)

1
2 Reliance on multiple tests recognizes that no single methodology produces
3 a precise definitive estimate of the cost of equity. As stated in Bonbright,
4 Danielsén, and Kamerschen (1988), '*no single or group test or technique*
5 *is conclusive.*' Only a fool discards relevant evidence. (italics in original)
6 (emphasis added)
7

8 * * *
9

10 While it is certainly appropriate to use the DCF methodology to estimate
11 the cost of equity, there is no proof that the DCF produces a more accurate
12 estimate of the cost of equity than other methodologies. Sole reliance on
13 the DCF model ignores the capital market evidence and financial theory
14 formalized in the CAPM and other risk premium methods. **The DCF**
15 **model is one of many tools to be employed in conjunction with other**
16 **methods to estimate the cost of equity.** It is not a superior methodology
17 that supplants other financial theory and market evidence. The broad
18 usage of the DCF methodology in regulatory proceedings in contrast to its
19 virtual disappearance in academic textbooks does not make it superior to
20 other methods. The same is true of the Risk Premium and CAPM
21 methodologies. (emphasis added)
22

23 Both the use of the market data of a proxy group of similar risk as well as the use
24 of multiple common equity cost rate models adds reliability to the informed expert
25 judgment used in arriving at a recommended common equity cost rate.

26 In view of the foregoing, I rely upon the results of three well-tested market
27 models: the DCF, RPM and CAPM in arriving at a common equity cost rate applicable to
28 EWAZ.
29

30 **VI. INVESTMENT RISK**

31 **Business Risk**

32 **Q. PLEASE DEFINE BUSINESS RISK AND EXPLAIN WHY IT IS IMPORTANT**
33 **TO THE DETERMINATION OF A FAIR RATE OF RETURN.**

1 A. The investor-required return on common equity reflects investors' assessment of the total
2 investment risk of the subject firm. Total investment risk often is discussed in the context
3 of business and financial risk.

4 Business risk reflects the uncertainty associated with owning a company's
5 common stock without the company's use of debt and/or preferred financing. One way
6 of considering the distinction between business and financial risk is to view the former as
7 the uncertainty in the expected earned return on common equity assuming the firm is
8 financed with no debt.

9 Examples of the business risks generally faced by utilities include, but are not
10 limited to, the regulatory setting, environmental requirements, customer mix and
11 concentration of customers, service territory economic growth, market demand, supply,
12 operations, capital intensity, size, and the degree of operating leverage, all of which have
13 a direct bearing on earnings. Although analysts, including rating agencies, may
14 categorize business risks according to individual categories, as a practical matter they are
15 inter-related and are not wholly distinct from another. Therefore, it is difficult to
16 specifically and numerically quantify the effect on investors' required return, i.e., the cost
17 of capital. For the purpose of determining the proper return on equity, the relevant issue
18 is where investors see the subject company as falling within a spectrum of risk. To the
19 extent investors view a company as being exposed to additional risk, the required return
20 will increase.

21 For regulated utilities, business risks are both long- and near-term in nature.
22 Whereas near-term business risks are reflected in year-to-year variability in earnings and

1 cash flow brought about by economic or regulatory factors, long-term business risks
2 reflect the prospect of an impaired ability for investors to recover the return on and of
3 their capital. Moreover, unlike unregulated entities, utilities accept the obligation to
4 serve: providing safe and reliable service at all times and, as such, generally do not have
5 the option to delay, defer, or reject capital investments. Because those investments are
6 capital-intensive, utilities generally do not have the option to avoid raising external funds
7 during periods of capital market distress.

8 Since utilities invest in long-lived assets, long-term business risks are of
9 considerable concern to equity investors. That is, the risk of not recovering the return on
10 and of their investment extends far into the future. But, the timing and nature of events
11 that may lead to losses also are uncertain and as a consequence, those risks and their
12 implications for the required return on equity tend to be difficult to quantify. That does
13 not mean, however, that the risk is of no consequence to investors. Analysts may apply,
14 for example, simulation-based methods to assess the potential risk but in the final
15 analysis, like the investors that commit their capital, regulatory commissions must review
16 a variety of quantitative and qualitative data and apply their reasoned judgment to
17 determine how long-term risks weigh in their assessment of the market-required return on
18 equity.

19 It is important to also bear in mind the distinction between debt and equity
20 investors when assessing the implications of business risks on the cost of equity. In
21 general, whereas debt holders have a priority claim on earnings and assets, equity holders
22 are the "residual claimants." Because they bear that residual risk, equity investors require

1 a premium over the return required by debt investors. That is, because returns to equity
2 holders are riskier than returns to bondholders, equity investors must be compensated for
3 bearing that additional risk (leading to the equity risk premium). That is not to say that
4 the risks facing debt and equity investors are separate and distinct as discussed above.
5 The two have much in common, but only to a point. As a consequence, reviewing data
6 such as credit spreads may give us a sense of how the capital markets generally assess
7 changes in general or company-specific circumstances, but it will not necessarily provide
8 a complete assessment of the implications for equity investors. Nonetheless, commentary
9 from both debt and equity analysts is instructive and helps inform the placement of the
10 required return within the range of analytical results.

11 **Q. WHAT BUSINESS RISK DOES THE WATER AND WASTEWATER UTILITY**
12 **INDUSTRY IN GENERAL FACE TODAY?**

13 **A.** Water is essential to life as it is the only utility product which is intended for customers to
14 ingest. Consequently, water quality is of paramount importance to the health and well-
15 being of customers. Therefore, it is subject to additional and increasingly stricter health
16 and safety regulations. Beyond health and safety concerns, customers also have
17 significant aesthetic concerns regarding the water delivered to them with regulators
18 paying close attention to these concerns because of the strong feelings they arouse in
19 consumers.

20 Water and wastewater utilities serve a production function, delivery function and
21 wastewater treatment or reuse function. They obtain supply from wells, aquifers, surface
22 water reservoirs or streams and rivers. Throughout the years, well supplies and aquifers

1 have been environmentally threatened, with historically minor purification treatment
2 giving way to major well rehabilitation, extensive treatment or replacement.
3 Simultaneously, safe drinking water quality standards have tightened considerably,
4 requiring multiple types of treatment prior to water delivery. Once the water is delivered
5 to customers the return wastewater flow delivered back to the utility requires significant
6 treatment before the effluent can be reused and reinjected back into the aquifer. Supply
7 availability is also limited by drought, water source overuse, runoff, threatened species
8 and habitat protection, and other operational, political and environmental factors.
9 Increasingly stringent environmental standards necessitate additional capital investment
10 in the distribution, and treatment of water and the treatment and reuse of wastewater,
11 exacerbating the pressure on water and wastewater utilities' free cash flows through
12 increased capital expenditures for infrastructure, repair and replacement. In addition, the
13 United States Environmental Protection Agency, as well as individual state and local
14 environmental agencies, is continually monitoring potential contaminants in the water
15 supply and promulgating or expanding regulations when necessary. In the course of
16 procuring water supplies and treating water so that it complies with Safe Drinking Water
17 Act standards, water and wastewater utilities have an ever-increasing responsibility to be
18 stewards of the environment from which supplies are drawn in order to preserve and
19 protect essential natural resources of the United States.

20 Water and wastewater utilities are typically vertically engaged in the entire
21 process of acquiring supply, producing, treating, and distributing water serving both a
22 production function in addition to a delivery function and then treating wastewater for

1 reuse and reinjection back into the aquifer. Accordingly, water and wastewater utilities
2 require significant capital investment, not only in the sources of supply and production,
3 i.e., wells and treatment facilities, but also in storage facilities as well as transmission and
4 distribution systems in order to serve additional customers and to replace aging systems
5 as well as wastewater treatment facilities and distribution systems. The significant
6 amount of capital investment required is a major risk factor for the water and wastewater
7 utility industry.

8 **Capital Intensity**

9 **Q. PLEASE DISCUSS THE CAPITAL INTENSITY OF THE WATER AND**
10 **WASTEWATER UTILITY INDUSTRY RELATIVE TO OTHER UTILITY**
11 **INDUSTRIES.**

12 **A.** As a capital-intensive industry, water and wastewater utilities require greater investment
13 in the capital required to produce a dollar of revenue than do other industries, including
14 electric and natural gas utilities. For example, as shown on page 1 of Schedule 2, it took
15 \$4.08 of net utility plant on average to produce \$1.00 in operating revenues in 2015 for
16 the water utility industry as a whole. For EWAZ specifically, it took a greater amount,
17 \$5.55, of net utility plant to produce \$1.00 in operating revenues in 2015. In contrast, for
18 the electric, and natural gas utility industries, on average it took only \$4.08, \$2.69 and
19 \$1.67, respectively, to produce \$1.00 in operating revenues in 2015. As financing needs
20 have increased and will continue to increase, the competition for capital from traditional
21 sources has increased and continues to increase, making the need to maintain financial
22 integrity and the ability to attract needed new capital increasingly important.

1 **Q. HOW WILL THE NECESSARY CAPITAL TO FUND THIS LEVEL OF**
2 **INFRASTRUCTURE REPLACEMENT BE RAISED?**

3 A. The water and wastewater utility industry's high degree of capital intensity, coupled with
4 the need for substantial infrastructure capital spending, requires regulatory support in the
5 form of adequate and timely rate relief through the allowance of a sufficient rate of
6 return, which has become increasingly important for water utilities to continue to
7 successfully meet the challenges they face.

8 Substantial water and wastewater utility investment and expenditures require
9 significant financing. The three sources typically used for financing are debt, equity
10 (common and preferred) and cash flow. All three are intricately linked to the opportunity
11 to earn a sufficient rate of return as well as the ability to actually achieve that return.
12 Consistent with *Hope* and *Bluefield*, the return must be sufficient enough to maintain
13 credit quality as well as enable the attraction of necessary new capital, be it debt or equity
14 capital. If unable to raise debt or equity capital, the utility must turn to either retained
15 earnings or free cash flow,¹⁵ both of which are directly linked to earning a sufficient rate
16 of return. The level of free cash flows represents the financial flexibility of a firm, i.e., its
17 ability to meet the needs of its debt and equity holders. If either retained earnings or free
18 cash flows are inadequate, it will be nearly impossible for the utility to attract the
19 necessary new capital, on reasonable terms, to invest in needed new infrastructure. An
20 insufficient rate of return can be financially devastating for utilities with their obligation
21 to provide safe and reliable service to their customers at all times.

¹⁵ Operating cash flow (funds from operations) minus capital expenditures.

Financial Risk

Q. PLEASE DEFINE FINANCIAL RISK AND EXPLAIN WHY IT IS IMPORTANT TO THE DETERMINATION OF A FAIR RATE OF RETURN.

A. Financial risk is the additional risk that a company may not have sufficient cash flows to meet its financial obligations and is created by the introduction of senior capital, i.e., debt and/or preferred stock, into the capital structure. The higher the proportion of senior capital in the capital structure, the higher the financial risk which must be factored into the common equity cost rate, consistent with the previously mentioned basic financial principle of risk and return, i.e., investors demand a higher common equity return as compensation for bearing higher investment risk.

Q. CAN THE COMBINED BUSINESS RISKS, I.E., INVESTMENT RISK OF AN ENTERPRISE, BE PROXIED BY BOND AND CREDIT RATINGS?

A. Yes, similar bond/issuer credit (bond/credit) ratings reflect and are representative of similar combined business and financial risks, i.e., total risk faced by bond investors.¹⁶ Although specific business or financial risks may differ between companies, the same bond/credit rating indicates that the combined risks are similar, albeit not necessarily equal, as the purpose of the bond/credit rating process is to assess credit quality or credit risk and not common equity risk.

However, it must be kept in mind that a long-term issuer credit or bond issue rating is an opinion regarding the particular company's overall financial capacity to pay

¹⁶

Risk distinctions within S&P's bond rating categories are recognized by a plus or minus, i.e., within the A category, an S&P rating can be at A+, A, or A-. Risk distinctions for Moody's ratings are distinguished by numerical rating gradations, i.e., within the A category, a Moody's rating can be A1, A2 and A3.

1 its financial obligations as they become due and payable. The claims of equity holders,
2 on the other hand, are subordinate to the claims of debt holders and are perpetual in life.
3 As noted above, whereas bondholders can be assured of the probability that a particular
4 company will be able to meet its financial obligations (and thus have higher credit/bond
5 ratings), common equity holders bear the residual risk of insufficient or volatile cash
6 flows in perpetuity. For that fundamental reason, the risks of owning common equity do
7 not directly correspond to the risks of owning bonds. The two have similar
8 considerations, but only to a point.

9 **VII. EPCOR WATER ARIZONA INC.**

10 **Q. HAVE YOU REVIEWED FINANCIAL DATA FOR EWAZ?**

11 A. Yes. EWAZ provides water and wastewater service to approximately 200,000 customers.
12 As a wholly owned subsidiary of EPCOR, EWAZ's common stock is not publicly traded.

13 As shown on page 1 of Schedule 3, during the five-year period ending 2015, the
14 achieved average earnings rate on book common equity for EWAZ (total company) was
15 8.83%. The five-year ending 2015 average common equity ratio, based upon total
16 permanent capital, was 41.75% and the average dividend payout ratio was 58.16%.

17 Total debt to EBITDA¹⁷ ratio for the years 2011-2015 ranged between 4.06 and
18 4.83 times, averaging 4.39 times. Funds from operations relative to total debt ranged
19 from 4.29% to 10.52%, with a five-year average of 6.26%. These metrics, although they
20 are not meant to be precise indicators of bond rating opinions, confirm my opinion that if

¹⁷ Earnings before Interest, Taxes, Depreciation and Amortization.

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1 EWAZ's long-term debt were rated by either Moody's or S&P it would likely be rated A-
2 and A3 respectively as discussed below.

3 **VIII. PROXY GROUP**

4 **Q. PLEASE EXPLAIN HOW YOU CHOSE THE PROXY GROUP OF EIGHT**
5 **PUBLICLY TRADED WATER COMPANIES.**

6 A. I chose the Water Proxy Group by selecting those companies which meet the following
7 criteria:

- 8 1) They are included in the Water Utility Group of *Value Line's* Standard Edition
9 (January 15, 2016);
- 10 2) They have 70% or greater of 2015 total operating income derived from and 70% or
11 greater of 2015 total assets devoted to regulated water operations;
- 12 3) They had not publicly announced involvement in any major merger or acquisition
13 activity (i.e., one publicly-traded utility merging with or acquiring another) at the
14 time of the preparation of this testimony;
- 15 4) They have not cut or omitted their common dividends during the past five years or
16 through the time of the preparation of this testimony;
- 17 5) They have *Value Line* and Bloomberg adjusted betas;
- 18 6) They have a positive *Value Line* five-year dividends per share ("DPS") growth rate
19 projection; and,
- 20 7) They have *Value Line*, Reuters, Zacks or Yahoo! Finance, consensus five-year
21 earnings per share ("EPS") growth rate projections.

22 The following eight companies meet these criteria:

- American States Water Co. (AWR);
- American Water Works Co. Inc. (AWK);
- Aqua America, Inc. (WTR);
- California Water Service Corp. (CWT);
- Connecticut Water Service, Inc. (CTWS);
- Middlesex Water Co. (MSEX);
- SJW Corp. (SJW); and
- York Water Co. (YORW).

Q. HAVE YOU REVIEWED FINANCIAL DATA FOR THE PROXY GROUP?

A. Yes. Page 2 of Schedule 3 contains comparative capitalization and financial statistics for the Water Proxy Group for the years 2011-2015.

As shown on page 2 of Schedule 3, during the five-year period ending 2015 the historically achieved rate of return on book common equity for the group averaged 10.26%. The average common equity ratio based upon permanent capital (excluding short-term debt) was 52.15%, and the average dividend payout ratio was 58.56%.

Total debt outstanding as a percentage of EBITDA for the years 2011--2015 ranged between 3.40 and 4.30 times, averaging 3.76 times, for the 5-year period while funds from operations relative to total debt range between 19.19% and 25.95%, averaging 22.58%.

IX. COMMON EQUITY COST RATE FINDINGS

Q. ARE THE COST OF COMMON EQUITY MODELS YOU USE MARKET-BASED MODELS?

A. Yes. The DCF model is market-based in that market prices are utilized in developing the dividend yield component of the model. The RPM and CAPM are also market-based in that the bond/issuer ratings, expected bond yields/risk-free rate used in the application of the RPM reflect the market's assessment of bond/credit risk. In addition, the use of beta

1 coefficients to determine the equity risk premium reflects the market's assessment of
2 market/systematic risk as beta coefficients are derived from regression analyses of market
3 prices. Moreover, market prices are used in the development of the monthly returns and
4 equity risk premiums used in the Predictive Risk Premium Model ("PRPM"). Selection
5 of the companies in the Non-Price Regulated Proxy Group are market-based in that the
6 selection criteria are based upon statistical regression analyses of market prices.

7 **Discounted Cash Flow Model ("DCF")**

8 **Q. WHAT IS THE THEORETICAL BASIS OF THE DCF MODEL?**

9 A. The theory underlying the DCF model is that the present value of an expected future
10 stream of net cash flows during the investment holding period can be determined by
11 discounting those cash flows at the cost of capital, or the investors' capitalization rate.
12 DCF theory assumes that an investor buys a stock for an expected total return rate which
13 is derived from cash flows received in the form of dividends plus appreciation in market
14 price (the expected growth rate). Mathematically, the dividend yield on market price plus
15 a growth rate equals the capitalization rate (i.e., the total common equity return rate
16 expected by investors).

17 **Q. WHICH VERSION OF THE DCF MODEL DO YOU USE?**

18 A. I utilize the single-stage constant growth DCF model. The single-stage DCF model is
19 expressed as:

20
$$K = (D_1 / P_0) + g$$

21 Where: K = Cost of Equity Capital
22 D₁ = Expected Dividend Per Share in one year
23 P₀ = Current Market Price
24 G = Expected Dividend Per Share Growth

Dividend Yield

Q. PLEASE DESCRIBE THE DIVIDEND YIELD YOU USED IN YOUR APPLICATION OF THE DCF MODEL.

A. The unadjusted dividend yields are based upon a recent (February 29, 2016) indicated, i.e., most recent, dividend, divided by the average of closing market prices for the 60 days ending February 29, 2016, as shown in Column [1] on page 1 of Schedule 4.

Q. PLEASE EXPLAIN THE ADJUSTED DIVIDEND YIELD SHOWN ON PAGE 1 OF SCHEDULE 4, COLUMN [7].

A. Because dividends are paid periodically (quarterly), as opposed to continuously (daily), an adjustment must be made to the dividend yield. This is often referred to as the discrete, or the Gordon Periodic, version of the DCF model.

DCF theory calls for the use of the full expectational growth rate, or D_1 , in calculating the dividend yield component of the model. However, since the various companies in the Water Proxy Group increase their quarterly dividend at various times during the year, a reasonable assumption is to reflect one-half the annual dividend growth rate in the dividend yield component, or $D_{1/2}$. This is a conservative approach, which does not overstate the dividend yield that should be representative of the next 12-month period. Therefore, the actual average dividend yields in Column [1] on page 1 of Schedule 4 have been adjusted upward to reflect one-half the average projected growth rate shown in Column [6].

Growth Rate

Q. PLEASE EXPLAIN THE BASIS OF THE GROWTH RATES OF THE PROXY GROUP WHICH YOU USE IN YOUR APPLICATION OF THE DCF MODEL.

A. Investors with more limited resources than institutional investors are likely to rely upon widely available financial information services, such as *Value Line*, Reuters, Zacks and Yahoo! Finance. Investors recognize that such analysts have significant insight into the dynamics of the industries and individual companies they analyze, as well as a company's ability to effectively manage the effects of changing laws and regulations and ever changing economic and market conditions.

Security analysts' earnings expectations have a significant influence on market prices and are therefore reasonable indicators of investor expectations. As noted by Roger A. Morin.¹⁸

Because of the dominance of institutional investors and their influence on individual investors, analysts' forecasts of long-run growth rates provide a sound basis for estimating required returns. Financial analysts exert a strong influence on the expectations of many investors who do not possess the resources to make their own forecasts, that is, they are a cause of g.*

* g = growth

Over the long run, there can be no growth in DPS without growth in EPS. Thus, the use of earnings growth rates in a DCF analysis provides a better matching between investors' market price appreciation expectations and the growth rate component of the DCF. Therefore, I have relied upon security analysts' five-year forecasts of EPS growth in my application of the DCF model.

¹⁸ Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006) 298-303.

DCF Model Results

Q. PLEASE SUMMARIZE THE DCF MODEL RESULTS.

A. As shown on page 1 of Schedule 4, the mean result of the single-stage DCF model is 8.34% while the median is 8.27%. I have averaged these two results in arriving at a conclusion of a DCF-indicated common equity cost rate of 8.31% for the Water Proxy Group. By doing so, I have not only considered the DCF results for each company, but have mitigated the effect of outliers on either the high or the low side.

Q. PLEASE COMMENT UPON THE APPLICABILITY OF THE DCF MODEL IN ESTABLISHING A COST OF COMMON EQUITY FOR THE COMPANY.

A. The DCF model has a tendency to incorrectly specify investors' required common equity return rate when the market value of common stock differs significantly from its book value. Mathematically, because the "simplified" DCF model traditionally used in rate regulation assumes a market-to-book ratio of one, it understates or overstates investors' required return rate when market value exceeds or is less than book value. It does so because, in many instances, market prices reflect investors' assessments of long-range market price growth potentials (consistent with the infinite investment horizon implicit in the standard regulatory version of the DCF model) not fully reflected in analysts' shorter range forecasts of future growth in earnings per share (EPS). Thus, the market-based DCF model will result in a total annual dollar return on book common equity equal to the total annual dollar return expected by investors only when market and book values are equal, a rare and unlikely situation. For example, in recent years, the market values of water utilities' common stocks have been well in excess of their book values as shown on

1 page 2 of Schedule 3 ranging between 181.94% and 224.46% for the five years ending
2 2015 which generates DCF results that tend to understate investors' true required rates of
3 return.

4 Under DCF theory, the rate of return investors require is related to the market price
5 paid for a security. Thus, market prices form the basis of investment decisions and
6 investors' expected rates of return. In contrast, a regulated utility is generally limited to
7 earning on a net book value (depreciated original cost) rate base. Although market prices
8 are significantly influenced by analysts' EPS growth forecasts, market values can diverge
9 from book values for a myriad of macroeconomic reasons including, but not limited to,
10 EPS and DPS expectations, merger or acquisition expectations, interest rates, investor
11 sentiment, unemployment levels, monetary policy, and fiscal policy for example.

12 Traditional rate base/rate of return regulation, where a market-based common
13 equity cost rate is applied to a book value rate base, presumes that market-to-book ratios
14 are at unity or 1.00. However, there is ample empirical evidence over sustained periods
15 which demonstrate that this is an incorrect presumption. Since market-to-book ratios of
16 unity or 1.00 are rarely the case as discussed above, regulatory allowed ROEs, i.e., which
17 establish earnings by design, have a limited effect on utilities' market/book ratios as the
18 market prices of utility common stocks are also influenced by factors beyond the direct
19 influence of the regulatory process.

20 As noted by Phillips:¹⁹

21 Many question the assumption that market price should equal book value,
22 believing that 'the earnings of utilities should be sufficiently high to achieve
23

¹⁹ Phillips, Charles F., The Regulation of Public Utilities – Theory and Practice (Public Utility Reports, Inc., 1993) 395.

market-to-book ratios which are consistent with those prevailing for stocks of unregulated companies.'

In addition, Bonbright²⁰ states:

In the first place, commissions cannot forecast, except within wide limits, the effect their rate orders will have on the market prices of the stocks of the companies they regulate. In the second place, *whatever the initial market prices may be, they are sure to change not only with the changing prospects for earnings, but with the changing outlook of an inherently volatile stock market.* In short, market prices are beyond the control, though not beyond the influence of rate regulation. Moreover, even if a commission did possess the power of control, any attempt to exercise it ... would result in harmful, uneconomic shifts in public utility rate levels. (italics added)

Q. CAN THE UNDER- OR OVERSTATEMENT OF THE INVESTORS' REQUIRED RATE OF RETURN BY THE DCF MODEL BE DEMONSTRATED MATHEMATICALLY?

A. Yes. Page 2 of Schedule 4 demonstrates how an average market-based DCF cost rate of 8.34% based upon the Water Proxy Group applied to a book value which is below market value will understate the investors' required return on market value. As shown, there is no realistic opportunity to earn the expected market-based rate of return on book value. In Column A, investors expect an 8.34% return, the average DCF result for the Water Proxy Group, on a market price of \$37.03. Column B shows that when the 8.34% return rate on market value is applied to book value which is 40.56%²¹ of market value, the total annual return opportunity is just \$1.252 on book value. Both columns shown that the same \$0.963 dividend is indicated but when the 8.34% is applied to book value, the investor only has the opportunity for \$0.289 in market appreciation, or 0.78%.

²⁰ James C. Bonbright, Albert L. Danielsen and David R. Kamerschen, Principles of Public Utility Rates (Public Utilities Reports, Inc., 1988) 334.

²¹ Representing a market-to-book ratio of 246.54%.

1 Hence, it is clear that the DCF model misspecifies, that is, it either understates or
2 overstates investors' required cost of common equity capital when market values
3 exceed/are less than their underlying book values. Therefore, as stated above, in order to
4 add reliability to the estimation of the cost of common equity, multiple cost of common
5 equity models should be relied upon, rather than exclusive reliance upon the DCF model,
6 when estimating investors' expectations.

7 In view of the foregoing, at this time the traditional application of the DCF
8 incorrectly specify investors' required return. Specifically, it understates investors'
9 required return because of the confluence of recently rising and volatile market prices, the
10 use of accounting measures as proxies for capital appreciation in the DCF, and the
11 expected continued rise in interest rates and capital costs discussed above. The magnitude
12 of this understatement can be found in the difference between the 5.74% average
13 expected growth in market value, i.e., growth in EPS, shown in Column A on page 2 of
14 Schedule 4 and the growth in market value of 0.78%, shown in Column B, when the
15 8.34% DCF cost rate is applied to book value, or up to approximately 495 basis points.
16 Coupled with the added reliability and accuracy that the use of multiple cost of common
17 equity models provides in the estimation of the cost of common equity, it is more
18 imperative than ever to not give exclusive or even primary reliance to the DCF analysis at
19 this time. In fact, in my opinion, it would be inappropriate to give any greater weight to
20 the DCF analysis than I already have in deriving my multi-model return on common
21 equity recommendation.

The Risk Premium Model ("RPM")

Q. PLEASE DESCRIBE THE THEORETICAL BASIS OF THE RPM.

A. The RPM is based upon the basic financial principle of risk and return, namely, that investors require greater returns for bearing greater risk. The RPM recognizes that common equity capital has a greater investment risk than debt capital, as common equity shareholders are last in line in any claim on an entity's assets and earnings as previously discussed. Thus, investors require higher returns from investment in common stocks, than from investment in bonds to compensate for the additional risk.

While, as also discussed previously, it is possible to directly observe bond returns and yields, the investor required common equity return cannot be directly determined or observed. According to RPM theory, one can estimate a common equity risk premium over bonds, either historically or prospectively, and then use that premium to derive a cost rate of common equity. According to the RPM, the cost of common equity equals the expected cost rate for long-term debt capital plus a risk premium over that cost rate to compensate common shareholders for the added risk of being unsecured and last-in-line for any claim on a corporation's assets and earnings.

Q. PLEASE EXPLAIN HOW YOU DERIVED YOUR INDICATED COST OF COMMON EQUITY BASED UPON THE RPM.

A. I relied upon the results of the application of two risk premium methods. The first method is the PRPM and the second method is a risk premium model using a total market approach.

Predictive Risk Premium Model ("PRPM")

Q. PLEASE EXPLAIN THE PRPM.

A. The PRPM, published in the *Journal of Regulatory Economics*²² and *The Electricity Journal*,²³ was developed from the work of Robert F. Engle who shared the Nobel Prize in Economics in 2003 "for methods of analyzing economic time series with time-varying volatility ("ARCH")".²⁴ Engle found that the volatility in market prices, returns, and equity risk premiums also clusters over time, making them highly predictable and useful in predicting future levels of risk and risk premiums.

The PRPM estimates the risk/return relationship directly as the predicted equity risk premium is generated by the prediction of volatility, or risk. Thus, the PRPM is not based upon an estimate of investor behavior, but rather upon the evaluation of the actual results of that behavior, i.e., the variance of historical equity risk premiums.

The inputs to the model are the historical monthly returns on the common shares of each utility in the Water Proxy Group minus the historical monthly yield on long-term U.S. Treasury securities through February 2016. Using a generalized form of ARCH, known as GARCH, each water utility's projected equity risk premium was calculated using EvIEWS[®] statistical software. When the GARCH model is applied to the historical return data, it produces a predicted GARCH variance series²⁵ and a GARCH

²² Autoregressive Conditional Heteroskedasticity. See "A New Approach for Estimating the Equity Risk Premium for Public Utilities," Pauline M. Ahern, Frank J. Hanley and Richard A. Michelfelder, Ph.D. *The Journal of Regulatory Economics* (December 2011), 40:261-278.

²³ "Comparative Evaluation of the Predictive Risk Premium ModelTM, the Discounted Cash Flow Model and the Capital Asset Pricing Model," Pauline M. Ahern, Richard A. Michelfelder, Ph.D., Rutgers University, Dylan W. D'Ascendis, and Frank J. Hanley, *The Electricity Journal* (May, 2013).

²⁴ www.nobelprize.org

²⁵ Illustrated in Columns [1] and [2] on page 2 of Schedule 5.

coefficient.²⁶ The forecasted 30-Year U.S. Treasury Bond (Note) yield of 3.53% is based upon the consensus forecast for the six quarters ending with the second quarter 2017 derived from the January 1, 2016 *Blue Chip* averaged with the long-range forecasts for 2017-2021 and 2022-2026 from the December 1, 2015 *Blue Chip*.²⁷ As shown on page 2 of Schedule 5, the average PRPM indicated common equity cost rate is 11.78% for the Water Proxy Group, while the median is 11.36%. Consistent with my reliance upon the average of the mean and median DCF results, I rely upon the average of the mean and median PRPM results of 11.57%,²⁸ as the indicated PRPM cost rate.

Total Market Approach Risk Premium Model

Q. PLEASE EXPLAIN THE ADJUSTED TOTAL MARKET APPROACH RPM.

A. The total market approach RPM adds a prospective public utility bond yield to the average of: 1) an equity risk premium derived from a beta-adjusted total market equity risk premium; and 2) an equity risk premium based upon the S&P Utilities Index.

Derivation of the Prospective Public Utility Bond Yield

Q. PLEASE EXPLAIN THE BASIS OF THE ADJUSTED PROSPECTIVE BOND YIELD OF 5.16% APPLICABLE TO THE EIGHT PUBLICLY TRADED WATER COMPANIES, SHOWN ON PAGE 3 OF SCHEDULE 5.

A. The first step in the total market approach RPM analysis is to determine the expected bond yield. Because both ratemaking and the cost of capital (including common equity cost rate) are prospective in nature, a prospective yield on similarly-rated long-term debt

²⁶ Illustrated in Column [4] on page 2 of Schedule 5.

²⁷ See pages 9 and 10 of Schedule 5.

²⁸ $(11.57\% = (11.78\% + 11.36\%) / 2)$.

1 is essential. Since *Blue Chip* does not publish consensus forecasts for the Moody's A
2 rated public utility bond yield, I began with the March 1, 2016 *Blue Chip's* consensus
3 forecast of about 50 economists of the expected yield on Aaa rated corporate bonds for
4 the six calendar quarters ending with the second calendar quarter of 2017 as derived from
5 the March 1, 2016 *Blue Chip* averaged with the long-range forecasts for 2017-2021 and
6 2022-2026 also from the December 1, 2015 *Blue Chip*.²⁹ As shown on Line No. 1 of
7 page 3 of Schedule 5, the average expected yield on Moody's Aaa rated corporate bonds
8 is 4.70%. In order to derive a prospective Moody's A2 rated public utility bond yield, an
9 adjustment of 0.26% to the average spread between Moody's Aaa rated corporation bond
10 yields and Moody's A rated public utility bond yields for the three months ending
11 February 2016³⁰ must be made to the average Aaa corporate bond yield which results in a
12 bond yield of 4.96% applicable to a Moody's A2 public utility bond³¹.

13 Likewise the Water Proxy Group's average Moody's long-term issuer rating is
14 A2/A3 as shown on page 5 of Schedule 5, a further adjustment to the prospective
15 Moody's A2 public utility bond yield of 0.20%,³² or one-third (1/3) of the average spread
16 of 1.20% between Moody's A rated and Baa rated public utility bonds for the three
17 months ending February 2016, to the prospective Moody's A2 public utility bond yield of
18 4.96% is necessary to make the prospective bond yield applicable to the Water Proxy
19 Group's average A2/A3 long-term issuer rating.³³ Adding the 0.20% to the 4.96%

²⁹ See pages 9 and 10 of Schedule 5.

³⁰ See page 4 of Schedule 5.

³¹ 4.96% = 4.70% + 0.26%, As shown on Line No. 3 and explained in Note 2 on page 3 of Schedule 5.

³² 0.40% = (1/3) * 1.20%. Please see page 4 of Schedule 5 for the derivation of the 1.20%.

³³ As detailed in Note 3 on page 3 of Schedule 5.

prospective A2 public utility bond yield results in a 5.16%³⁴ expected bond yield for the Water Proxy Group as shown on Line No. 5.

Beta Derived Equity Risk Premium

Q. PLEASE EXPLAIN THE METHOD OF ESTIMATING THE EQUITY RISK PREMIUM IN THE ADJUSTED TOTAL MARKET APPROACH.

A. The total beta derived equity risk premium is based upon an average of:

- 1) The long-term arithmetic mean historical market equity risk premium;
- 2) A predicted equity risk premium based upon the PRPM;
- 3) A forecasted market risk premium based upon *Value Line's* projected market appreciation and dividend yield; and,
- 4) A forecasted equity risk premium based upon the S&P 500 market-value weighted projected market appreciation and dividend yield.
- 5) Each of these is described in turn.

Q. HOW DID YOU DERIVE THE LONG-TERM HISTORICAL MARKET EQUITY RISK PREMIUM?

A. To derive a historical market equity risk premium, I used the most recent Morningstar data on holding period returns for the large company common stocks from the Ibbotson[®] SBBI[®] 2015 Classic Yearbook – Market Results for Stocks, Bonds, Bill and Inflation 1926 – 2014 (“SBBI – 2015”)³⁵ and the average historical yield on Moody’s Aaa and Aa rated corporate bonds for the period 1928-2014. The use of holding period returns over a

³⁴ 5.16% = 4.96% + 0.20%. As shown on Line No. 5 and explained in Note 3 on page 3 of Schedule 5.
³⁵ Ibbotson[®] SBBI[®] 2015 Classic Yearbook – Market Results for Stocks, Bonds, Bills and Inflation 1926 – 2014, Morningstar, Inc., 2015 at 153.

1 very long period of time is useful because it is consistent with the long-term investment
2 horizon by investing in a going concern, i.e., a company expected to operate in
3 perpetuity.

4 Morningstar's long-term arithmetic mean monthly total return rate on large
5 company common stocks is 11.79% and the long-term arithmetic mean monthly yield on
6 Moody's Aaa and Aa rated corporate bonds is 6.18%. The resultant long-term historical
7 equity risk premium on the market as a whole is 5.61%.³⁶

8 I used arithmetic mean monthly total return rates for the large company stocks
9 and yields (income returns) for Moody's Aaa/Aa corporate bonds because they are
10 appropriate for cost of capital purposes as noted in the SBBI – 2015.³⁷ The use of
11 arithmetic mean return rates and yields are appropriate because ex-post (historical) total
12 returns and equity risk premiums differ in size and direction over time, providing insight
13 into the variance and standard deviation of returns needed by investors in estimating
14 future risk when making a current investment. Absent such valuable insight into the
15 potential variance of returns, investors cannot meaningfully evaluate prospective risk. If
16 investors alternatively relied upon the geometric mean of ex-post equity risk premiums,
17 they would have no insight into the potential variance of future returns because the
18 geometric mean relates the change over many periods of time to a constant rate of
19 change, thereby obviating the period-to-period fluctuations, or variance, critical to risk
20 analysis.

³⁶ As explained in Note 1 on page 8 of Schedule 5.

³⁷ SBBI – 2015 at 153.

1 **Q. PLEASE EXPLAIN THE DERIVATION OF A PRPM MARKET EQUITY RISK**
2 **PREMIUM.**

3 A. I used the same PRPM approach described previously to develop a second market equity
4 risk premium estimate. The inputs to the model are the historical monthly returns on large
5 company common stocks from SBBI – 2015 minus the monthly yields on Aaa and Aa
6 corporate bonds during the period from January 1928 through January 2016. Using the
7 GARCH, the market's projected equity risk premium was determined using Eviews®
8 statistical software. The resulting predicted market equity risk premium based upon the
9 PRPM is 7.20%.³⁸

10 **Q. PLEASE EXPLAIN THE DERIVATION OF A PROJECTED EQUITY RISK**
11 **PREMIUM BASED UPON *VALUE LINE* DATA.**

12 A. As noted previously, because both ratemaking and the cost of capital, including the cost
13 rate of common equity, are prospective, a prospective market equity risk premium is
14 essential. The derivation of the forecasted or prospective market equity risk premium can
15 be found in Note 3 on page 8 of Schedule 5. Consistent with the development of the
16 dividend yield component of my DCF analysis, the third prospective market equity risk
17 premium is derived from an average of the 3-5 year estimated median market price
18 appreciation potential by *Value Line* plus an average of the median estimated dividend
19 yield for the common stocks of the approximately 1,700 firms covered in *Value Line's*
20 Standard Edition, both for the thirteen weeks ending March 4, 2016.

³⁸

As shown in Line No. 2 on page 8 of Schedule 5 and explained in Note 2.

1 The average median expected price appreciation is 55%, which translates to an
2 11.58% annual appreciation and, when added to the average (similarly calculated)
3 median dividend yield of 2.45% equates to a forecasted annual total return rate on the
4 market as a whole of 14.03%. The forecasted Aaa bond yield of 4.70%³⁹ is deducted
5 from the total market return of 14.03%, resulting in an equity risk premium of 9.33%.⁴⁰

6 **Q. PLEASE EXPLAIN THE DERIVATION OF A MARKET EQUITY RISK**
7 **PREMIUM BASED UPON THE S&P 500 COMPOSITE INDEX COMPANIES.**

8 A. Using data from Bloomberg Financial, a market-value weighted expected total return for
9 the S&P 500 companies can be derived using the expected dividend yields and projected
10 long-term growth in earnings per share as a proxy for capital appreciation. The expected
11 market-value weighted total return for the S&P 500 is 13.51%. Subtracting the
12 prospective yield on Moody's Aaa rated corporate bonds of 4.70% results in an 8.81%
13 projected market equity risk premium⁴¹.

14 **Q. WHAT IS YOUR CONCLUSION OF THE MARKET EQUITY RISK PREMIUM**
15 **FOR YOUR TOTAL MARKET APPROACH RPM?**

16 A. It is 7.74% as shown on Line No. 5 on page 8 of Schedule 5. In arriving at this
17 conclusion, I averaged: 1) the historical market equity risk premium of 5.61%; 2) the
18 PRPM based market equity risk premium of 7.20%; 3) the *Value Line*-based forecasted
19 market equity risk premium of 9.33%; and, 4) the S&P 500 market-value weighted

³⁹ See pages 9 and 10 of Schedule 5.

⁴⁰ As shown on page 8 of Schedule 5 and explained in Note 3

⁴¹ As shown on Line No. 4 on page 8 of Schedule 5 and explained in Note 4.

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1 projected market equity risk premium of 8.81% shown on Line Nos. 1 through 4 on page
2 8 of Schedule 5.⁴²

3 **Q. WHAT IS YOUR CONCLUSION OF A BETA DERIVED EQUITY RISK**
4 **PREMIUM FOR USE IN YOUR TOTAL MARKET APPROACH RPM**
5 **ANALYSIS?**

6 A. The conclusion of the market equity risk premium of 7.74% is then adjusted by beta to
7 account for the market risk of the Water Proxy Group. Beta is a measure of relative risk
8 to the market as a whole and a logical means by which to allocate an entity's/proxy
9 group's share of the total market's equity risk premium relative to corporate bond yields.
10 As shown on Page 1 of Schedule 6, column 3, the mean and median *Value Line* and
11 Bloomberg betas for the Water Proxy Group average is 0.71. Multiplying a beta of 0.71
12 by the market equity risk premium of 7.74%, on Line No. 5 of page 8 of Schedule 5,
13 results in a beta adjusted equity risk premium of 5.50% for the Water Proxy Group.⁴³

14 **S&P Utility Index Derived Equity Risk Premium**

15 **Q. PLEASE EXPLAIN THE DERIVATION OF AN EQUITY RISK PREMIUM**
16 **BASED UPON THE S&P UTILITY INDEX.**

17 A. I calculated three estimated equity risk premiums based upon the S&P Utility Index.
18 First, I derived the long-term monthly arithmetic mean equity risk premium between the
19 S&P Utility Index total returns of 10.49% and monthly A rated public utility bond yields
20

⁴² (7.74% = (5.61% + 7.20% + 9.33% + 8.81%) / 4)

⁴³ As shown on Line No. 7 on page 8 of Schedule 5.

1 of 6.64% from 1928-2015 to arrive at an equity risk premium of 3.85%,⁴⁴ I then applied
2 the PRPM using historical monthly equity risk premiums from January 1928 through
3 February 2016 to arrive at the PRPM derived equity risk premium of 3.99% for the S&P
4 Utility Index.⁴⁵ Third, I derived an expected market-value weighted total return on the
5 S&P Utility Index of 9.22% using data from Bloomberg Financial and subtracting the
6 prospective Moody's A rated public utility bond yield of 4.96%, resulting in an equity
7 risk premium of 4.26%.⁴⁶

8 I rely upon the average of the historical (3.85%); the PRPM (3.99%) and S&P
9 Utility Index (4.26%) derived equity risk premiums, which is 4.03%.⁴⁷

10 **Conclusion of Equity Risk Premium for Total Market Approach RPM**
11 **Analysis**

12 **Q. WHAT IS YOUR CONCLUSION OF AN EQUITY RISK PREMIUM FOR USE IN**
13 **YOUR ADJUSTED TOTAL MARKET APPROACH RPM ANALYSIS?**

14 A. The equity risk premium applicable to the Water Proxy Group is 4.77%,⁴⁸ derived by
15 averaging the beta-derived premium of 5.50% with the equity risk premium of 4.03%
16 based upon the holding period returns of public utilities with Moody's A rated bonds.

17 **Q. WHAT IS THE INDICATED RPM COMMON EQUITY COST RATE BASED**
18 **UPON THE ADJUSTED TOTAL MARKET APPROACH?**

19 A. It is 9.93% for the Water Proxy Group as shown on Line No. 7 on page 3 of Schedule 5.

⁴⁴ As shown on Line No. 3 on page 11 of Schedule 5.

⁴⁵ As shown on Line No. 4, on page 11 of Schedule 5.

⁴⁶ As shown on Line No. 5 on page 11 of Schedule 5.

⁴⁷ $(4.03\% = ((3.85\% + 3.99\% + 4.26\%) / 3).$

⁴⁸ $(4.77\% = (5.50\% + 4.03\%) / 2).$

Risk Premium Model Results

Q. WHAT ARE THE RESULTS OF YOUR APPLICATION OF THE PRPM AND THE TOTAL MARKET APPROACH RPM?

A. As shown on page 1 of Schedule 5, the indicated RPM-derived common equity cost rate is 10.75%,⁴⁹ derived by averaging the PRPM results of 11.57% with those based upon the adjusted total market approach, 9.93%.

The Capital Asset Pricing Model ("CAPM")

Q. PLEASE EXPLAIN THE THEORETICAL BASIS OF THE CAPM.

A. CAPM theory defines risk as the covariability of a security's returns with the market's returns as measured by beta coefficient (β). A beta coefficient less than 1.0 indicates lower variability than the market as a whole, while a beta coefficient greater than 1.0 indicates greater variability than the market a whole.

The CAPM assumes that all other risk, i.e., all non-market or unsystematic risk, can be eliminated through diversification. The risk that cannot be eliminated through diversification is called market, or systematic, risk. In addition, the CAPM presumes that investors require compensation only for systematic risk that is the result of macroeconomic and other events that affect the returns on all assets. The CAPM is applied by adding a risk-free rate of return to a market risk premium, which is adjusted by the beta coefficient. The traditional CAPM model is expressed as:

⁴⁹ (10.75% = ((11.57% + 9.93%) / 2).

1 $R_s = R_f + \beta(R_m - R_f)$

2
3 Where: R_s = Return rate on the common stock

4
5 R_f = Risk-free rate of return

6
7 R_m = Return rate on the market as a whole

8
9 β = Adjusted beta (volatility of the security
10 relative to the market as a whole)

11
12 Numerous tests of the CAPM have measured the extent to which security
13 returns and beta coefficients are related as predicted by the CAPM, confirming its
14 validity. The empirical CAPM ("ECAPM") reflects the reality that while the results of
15 these tests support the notion that the beta coefficient is related to security returns, the
16 empirical Security Market Line ("SML") described by the CAPM formula is not as
17 steeply sloped as the predicted SML. Morin⁵⁰ states:

18 With few exceptions, the empirical studies agree that ... low-beta
19 securities earn returns somewhat higher than the CAPM would predict,
20 and high-beta securities earn less than predicted.

21
22 * * *

23
24 Therefore, the empirical evidence suggests that the expected return on a
25 security is related to its risk by the following approximation:

26
27 $K = R_F + x \beta(R_M - R_F) + (1-x) \beta(R_M - R_F)$

28
29 where x is a fraction to be determined empirically. The value of x that
30 best explains the observed relationship $\text{Return} = 0.0829 + 0.0520 \beta$ is
31 between 0.25 and 0.30. If $x = 0.25$, the equation becomes:

32
33 $K = R_F + 0.25(R_M - R_F) + 0.75 \beta(R_M - R_F)$ ⁵¹

34
35 In view of theory and practical research, I have applied both the traditional CAPM
36 and the ECAPM to the Water Proxy Group and averaged the results.

⁵⁰ Morin 175.

⁵¹ Morin 190.

Beta Coefficients

Q. PLEASE DESCRIBE YOUR SELECTION OF BETA COEFFICIENTS FOR YOUR CAPM ANALYSES.

A. I rely upon an average of the adjusted beta coefficients published by *Value Line* and Bloomberg Financial. While both of those services adjust their calculated (or “raw”) beta coefficients to reflect the tendency of the beta coefficient to regress to the market mean of 1.00, *Value Line* calculates its beta coefficient over a five-year period, while Bloomberg’s calculation is based upon two years of data.

Risk-free Rate of Return

Q. PLEASE DESCRIBE YOUR SELECTION OF A RISK-FREE RATE OF RETURN FOR YOUR CAPM ANALYSES.

A. As shown in Column [5] on page 1 of Schedule 6, the risk-free rate adopted for both applications of the CAPM is 3.53%. The risk-free rate of 3.53% is based upon the average of the consensus forecast for the six quarters ending with the second calendar quarter of 2017 from the March 1, 2016 *Blue Chip* averaged with the long-range forecasts for 2017-2021 and 2022-2026 also from the December 1, 2015 *Blue Chip*,⁵² as detailed in Note 2 on page 2 of Schedule 6.

Q. WHY IS THE YIELD ON LONG-TERM U.S. TREASURY BONDS APPROPRIATE FOR USE AS THE RISK-FREE RATE?

⁵²

See pages 9 and 10 of Schedule 5.

1 A. The yield on long-term U.S. Treasury T-Bonds is almost risk-free and its term is
2 consistent with: 1) the long-term cost of capital to public utilities measured by the yields
3 on A rated public utility bonds; 2) the long-term investment horizon inherent in utilities'
4 common stock; and 3) the long-term life of the jurisdictional rate base to which the
5 allowed fair rate of return (i.e., cost of capital) will be applied. In contrast, short-term
6 U.S. Treasury yields are more volatile.

7 **Market Equity Risk Premium**

8 **Q. PLEASE EXPLAIN THE ESTIMATION OF THE EXPECTED EQUITY RISK**
9 **PREMIUM FOR THE MARKET.**

10 A. The basis of the market equity risk premium is explained in detail in Note 1 of Schedule
11 6. It is derived from an average of:
12 1) The 3-5 year median total market price appreciation projections for the thirteen
13 weeks ending March 4, 2016 reported by *Value Line*;
14 2) The PRPM predicted market equity risk premium, using monthly equity risk
15 premiums for large company common stocks relative to long-term U.S. Treasury
16 securities from January 1926 through January 2016;
17 3) The arithmetic mean monthly equity risk premiums of large company common
18 stocks relative to long-term U.S. Treasury bond income yields from SBBI-2015
19 from 1926 to 2014; and
20 4) The market-value weighted projected total return on the S&P 500 minus the
21 projected risk-free rate.

The *Value Line*-derived forecasted total market equity risk premium is derived by deducting the projected 3.53% risk-free rate, discussed above, from the *Value Line* projected total annual market return of 14.03%, also discussed above, resulting in a forecasted total market equity risk premium of 10.50%.⁵³

The long-term income return on U.S. Government Securities of 5.23% was deducted from the SBBI – 2015⁵⁴ monthly historical total market return of 12.07% resulting in an historical market equity risk premium of 6.84%.⁵⁵

The PRPM market equity risk premium is 8.12%, derived using the PRPM, discussed above, relative to the yields on long-term U.S. Treasury securities from January 1926 through January 2016.

The S&P 500 market-value weighted projected market equity risk premium of 9.98% is derived by subtracting the 3.53% projected risk-free rate, discussed above, from the projected total return of 13.51%, also discussed above.⁵⁶

These four market equity risk premiums result in an average total market equity risk premium of 8.86%.⁵⁷

CAPM Results

Q. WHAT ARE THE RESULTS OF YOUR APPLICATIONS OF THE TRADITIONAL AND EMPIRICAL CAPM TO THE WATER PROXY GROUP?

⁵³ (8.27% = 12.02% - 3.75%).

⁵⁴ SBBI-2015, 196-197, 208-209.

⁵⁵ (6.84% = 12.07% - 5.23%).

⁵⁶ (9.98% = 13.51% - 3.53%),

⁵⁷ (8.86% = ((10.50% + 6.84% + 8.12% + 9.98%) / 4).

1 A. As shown on Schedule 6, the average CAPM/ECAPM cost rate is 10.09% while the
2 median CAPM/ECAPM cost rate is 10.11%, averaging 10.10%. Consistent with my
3 reliance upon the average of the average and median results of the DCF discussed above,
4 the Water Proxy Group's indicated common equity cost rate based upon my CAPM
5 analyses is 10.10%.

6 **X. SUMMARY OF INDICATED COMMON EQUITY COST RATE BASED UPON**
7 **THE PROXY GROUP FINDINGS**

8 **Q. WHAT IS THE INDICATED COMMON EQUITY COST RATE FOR THE**
9 **WATER PROXY GROUP BEFORE ADJUSTMENT?**

10 A. As described below, it is 10.15%, resulting from the application of multiple cost of
11 common equity models to the Water Proxy Group.

12 As discussed above, I employ multiple cost of common equity models as primary
13 tools in arriving at my recommended common equity cost rate because:

- 14 1) No single model is so inherently precise that it can be relied upon solely to the
15 exclusion of other theoretically sound models;
- 16 2) All of the models are market-based;
- 17 3) The use of multiple models adds reliability to the estimation of the common
18 equity cost rate; and
- 19 4) The prudence of using multiple cost of common equity models is supported in
20 both the financial literature and regulatory precedent.

21 Therefore, multiple models should be relied upon when estimating the investor
22 required rate of return on common equity.

I conclude that a common equity cost rate of 10.15% is reasonable and appropriate for the Water Proxy Group before any adjustments based upon the results of the cost of multiple common equity cost rate models applied to the Water Proxy Group and Non-Price Regulated Proxy Group are shown on Schedule 1, and summarized below:

Table 2

	<u>Water Proxy Group</u>
Discounted Cash Flow Model	8.31%
Risk Premium Model	10.75%
Capital Asset Pricing Model	<u>10.10%</u>
Indicated Common Equity Cost Rate Before Adjustment	<u>10.15%</u>

Based upon these common equity cost rate results, I conclude that a common equity cost rate of 10.15% is indicated for Water Proxy Group before applying the credit and unique business risk adjustments to determine EWAZ's common equity cost rate of 10.65%, as previously discussed.

Credit Risk Adjustment

Q. IS THERE A WAY TO QUANTIFY A CREDIT RISK ADJUSTMENT DUE TO EWAZ'S LIKELY MOODY'S AND S&P'S BOND RATINGS OF A3/A-?

A. Yes. As discussed previously, it is my opinion, that if Moody's and S&P were to rate EWAZ's long-term debt, they would likely assign bond ratings of A3/A- to the bonds because EWAZ's ultimate parent, EPCOR Utilities Inc., is assigned an A-credit rating by S&P⁵⁸ which links the credit rating of "a wholly owned or substantially controlled utility

⁵⁸ September 17, 2015. Please note that S&P's reports are confidential and that S&P does not take a position on rate filings.

1 subsidiary ... to the credit quality of its parent".⁵⁹ Since the Water Proxy Group has an
2 average S&P credit rating of A, S&P's bond rating of A+/A, in my opinion, S&P would
3 likely assign an A- credit and bond ratings to EWAZ based upon EPCOR's A- credit
4 rating. In addition, since Moody's bond ratings are generally analogous to S&P's bond
5 rating, it is my opinion that EWAZ would likely be assigned a bond rating of A3 by
6 Moody's, which is comparable to an A- by S&P. Since the average Moody's and S&P
7 bond ratings of the Water Proxy Group are A2/A3 and A, respectively, as shown on page
8 2 of Schedule 5, the Water Proxy Group enjoy lower credit risk than EWAZ and an
9 upward adjustment to the common equity cost rate based upon the Water Proxy Group is
10 warranted. An indication of the magnitude of such an adjustment is one-sixth (1/6) of a
11 recent three-month average spread between Moody's A and Baa rated public utility bond
12 yields of 0.20% shown on page 4 of Schedule 5.⁶⁰

13 **Business Risk Adjustment**

14 **Q. DOES EWAZ FACE ANY UNIQUE BUSINESS RISK RELATIVE TO THE**
15 **WATER PROXY GROUP?**

16 **A.** Yes. While EWAZ is considered a Class A utility in Arizona it is significantly smaller
17 than the average company in the Water Proxy Group, upon whose market data my
18 recommended common equity cost rate is based and which reflects the collective risk of
19 those companies which includes the lower risk inherent in their larger size relative to
20 EWAZ, based upon estimated market capitalization as shown in Table 4 below:

⁵⁹ Standard & Poor's Global Credit Portal® RatingsDirect® Methodology: Differentiating the Issuer. Credit Ratings of a Utility Subsidiary and Its Parent, March 11, 2010.

⁶⁰ 0.20% = 1.20% * (1/6).

Table 3

	<u>Market Capitalization (1)</u> <u>(\$ Millions)</u>	<u>Times Greater than the</u> <u>Company</u>
EPCOR Water Arizona Inc.	\$446.020	
Water Proxy Group	\$2,712.621	6.1X

(1) From page 1 of Schedule 7.

As shown above, EWAZ's estimated market capitalization of \$446.020 million is lower than the average market capitalization of the proxy water group, \$2.712 billion, or 6.1 times greater than EWAZ, as of February 29, 2016.

Consequently, EWAZ has greater relative business risk because, all else being equal, size has a bearing on risk. Investors demand a higher return to compensate for assuming greater risk, EWAZ's greater relative business risk must be reflected in the cost of common equity derived from the market data of the less business risky Water Proxy Group.

Q. HOW DOES A COMPANY'S SIZE HAVE A BEARING ON BUSINESS RISK?

A. Size affects business risk because smaller companies generally are simply less able to cope with significant events that affect sales, revenues and earnings. For example, smaller companies face more risk exposure to business cycles and economic conditions, both nationally and locally. Additionally, the loss of revenues from a few larger customers would have a greater effect on a small company than on a much bigger company with a larger, more diverse, customer base.

Further evidence that smaller firms are riskier is the fact that investors demand greater returns to compensate for the lack of marketability and liquidity of the securities

1 of smaller firms. The fact that it is the use of funds invested, and not the source of those
2 funds, which gives rise to the risk of any investment is a basic financial principle.⁶¹

3 Brigham⁶² states:

4 A number of researchers have observed that portfolios of small-firms have
5 earned consistently higher average returns than those of large-firms
6 stocks; this is called "small-firm effect." On the surface, it would seem to
7 be advantageous to the small firms to provide average returns in a stock
8 market that are higher than those of larger firms. In reality, it is bad news
9 for the small firm; what *the small-firm effect means is that the capital*
10 *market demands higher returns on stocks of small firms than on otherwise*
11 *similar stocks of the large firms.* (italics added)
12

13 Consistent with the financial principle of risk and return discussed above, such
14 increased risk due to small size must be taken into account in the allowed rate of return
15 on common equity. Therefore, the ACC should authorize a cost of common equity in this
16 proceeding that appropriately reflects EWAZ's relevant risks, including the impact of its
17 small size.

18 **Q. IS THERE A WAY TO QUANTIFY A BUSINESS RISK ADJUSTMENT DUE TO**
19 **EWAZ'S SMALL SIZE RELATIVE TO THE WATER PROXY GROUP?**

20 A. Yes. An indication of the magnitude of such an adjustment for the greater relative
21 business risk due to smaller relative size is based upon the size premiums for decile
22 portfolios of New York Stock Exchange (NYSE), American Stock Exchange (AMEX)
23 and NASDAQ listed companies for the 1926-2014 period and related data from Duff &
24 Phelps' 2015 Valuation Handbook Guide to Cost of Capital – Market Results through
25 2014 (D&P – 2015). The average size premium for the 5th and 6th deciles (1.67%)
26 between which the market capitalization of the Water Proxy Group falls has been

⁶¹ Brealey, Richard A. and Myers, Stewart C., Principles of Corporate Finance (McGraw-Hill Book Company, 1996) 204-205, 229.

⁶² Brigham, Eugene F., Fundamentals of Financial Management, Fifth Edition (The Dryden Press, 1989) 623.

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1 compared with the average size premium for the 9th decile (2.69%) in which the
2 estimated market capitalization of EWAZ falls. As shown on page 1 of Schedule 7, the
3 size premium spread between the 9th and 5th and 6th deciles is 1.02%. In view of the
4 foregoing, I am recommending a business risk adjustment of 0.30% to reflect EWAZ's
5 smaller size relative to the Water Proxy Group.

XI. CONCLUSION OF COMMON EQUITY COST RATE

Q. WHAT IS YOUR RECOMMENDED COST OF COMMON EQUITY FOR EWAZ?

A. After applying the 0.20% credit risk and 0.30% business risk adjustments to the indicated cost of common equity of 10.15% based upon the Water Proxy Group, an adjusted cost of common equity of 10.65% results as summarized in Table 5 below.

Table 4

	<u>Water Proxy Group</u>
Discounted Cash Flow Model	8.31%
Risk Premium Model	10.75%
Capital Asset Pricing Model	<u>10.10%</u>
Indicated Common Equity Cost Rate Before Adjustment	10.15%
Credit Risk Adjustment	0.20%
Business Risk Adjustment	<u>0.30%</u>
Indicated Common Equity Cost Rate After fter Adjustment	10.65%
Recommended Common Equity Cost Rate	<u><u>10.65%</u></u>

Based upon the foregoing, I conclude that an appropriate cost of common equity for the Company currently is 10.65%. In my opinion, a common equity cost rate of 10.65% is fair, reasonable and conservative given current capital market conditions, providing EWAZ with sufficient earnings to enable it to attract necessary new capital.

XII. RATE OF RETURN ON THE FAIR VALUE INCREMENTAL RATE BASE

Q. IS EWAZ REQUESTING THAT RATES BE SET IN THIS PROCEEDING BASED UPON A FAIR VALUE RATE BASE?

A. Yes.

1 **Q. HOW DOES THE COMMISSION TYPICALLY ESTIMATE THE FAIR VALUE**
2 **RATE OF RETURN ON THE FAIR VALUE RATE BASE?**

3 A. It is my understanding that the Commission has estimated the fair value rate of return
4 ("FVROR") on the fair value rate base ("FVRB") by first applying the overall rate of
5 return based upon a market based cost of common equity relative to the common equity
6 portion of the original cost less depreciation rate base ("OCRB") and the debt cost rate
7 relative to the debt portion of the OCRB. Then, the Commission applies a return of one-
8 half of an estimated real risk-free rate to the difference between the OCRB and the FVRB
9 with this difference known as the "fair value increment" or FVROR.⁶³

10 **Q. DO YOU AGREE WITH THE COMMISSION'S TRADITIONAL**
11 **METHODOLOGY FOR ESTIMATING THE FVROR?**

12 A, No. Because common equity investors bear greater investment risk being last in line in
13 any claim on a firm's assets and earnings, they require a greater return than do debt
14 investors as discussed previously. Therefore, the basic premise of the Commission's
15 methodology, namely, that equity investors require a lower return than the nominal risk-
16 free rate on the fair value increment to rate base is inconsistent with the basic financial
17 principle of risk and return. My cost of common equity analysis as well as those of any
18 other witnesses in this proceeding are and will be based upon the market data of utilities
19 of comparable risk to EWAZ. Moreover, investors purchase stock and the market value
20 of that stock, requiring and expecting to receive a return on that market value. Thus, the

⁶³

Decision 70665, Docket No. G-01551A-07-0504 (Southwest Gas Corporation) (Dec. 24, 2008) at 32.

1 FVRB, and fair value increment, is analogous to the market value of investors'
2 investment.

3 In regulation, rate base, no matter whether measured by book value or fair value,
4 is presumed to be financed with a mix of both debt and common equity. Thus, there is no
5 basis for presuming that the FVRB is financed with any other mix of capital than a
6 utility's book value capital structure. Therefore, the FVROR should be a return based
7 upon the same mix of debt and common equity cost rates as the overall rate of return
8 applied to the OCRB.

9 In addition, by definition, the risk-free rate is risk-free. And, based upon the
10 previously discussed financial principle of risk and return, because the cost of common
11 equity, in theory, is higher than the cost of debt, including the risk-free rate, it is
12 inconsistent with financial theory to presume that the investor required return on the fair
13 value increment would be less, and especially significantly less, than the cost of common
14 equity, let alone the cost of utility debt. In fact, it is almost assured that the cost rates of
15 common equity which result from the various rate of return analyses which will be
16 presented in this proceeding are and will be higher than any risk-free rates used in our
17 rate of return analyses. Thus, there is no theoretical basis for setting the FVROR at the
18 risk-free rate, nominal or real (net of inflation) and certainly not by one-half of the risk-
19 free rate.

20 Therefore, as stated previously, the appropriate rate of return to apply to the
21 FVRB is overall rate of return determined in this proceeding.

1 **Q. NEVERTHELESS, HAVE YOU ESTIMATED A FVROR USING THE**
2 **COMMISSION'S METHODOLOGY?**

3 A. Yes. However, in doing so, I have recognized the fact that the FVRB is an equal blend,
4 or average, of the OCRB and the Reconstructed Cost New Depreciated ("RCND").
5 Therefore, I have estimated inflation as an average of historical and projected inflation
6 and the nominal risk-free rate as an average of an historical and projected risk-free rate.

7 **Q. HOW DID YOU ESTIMATE INFLATION?**

8 A. First, as shown on Line No. 1 of Schedule 10, I estimated historical inflation of 2.67% as
9 the average annual inflation from 1987 – 2015 from Morningstar SBBI ("SBBI - 2016")
10 Appendix A Tables.⁶⁴ I have use the 1987 – 2015 (29 years) time period because based
11 upon EWAZ's 2014 depreciation rate of 3.5%, discussed previously and shown on page 2
12 of Schedule 2, the average life of its utility plant is between 28 and 29 years.

13 Second, I averaged two measures of projected inflation. As shown on Line No. 2
14 of Schedule 8, I estimated projected inflation of 1.95% based upon projections from 2016
15 - 2026 of the Consumer Price Index ("CPI") from the U.S. Annual Energy Outlook 2015
16 ("AEO")⁶⁵, while on Line No. 3 I estimated projected inflation of 2.25% by averaging the
17 long-range forecasts for 2017-2021 (2.30%) and 2022-2026 (2.20%) also from the
18 December 1, 2015 *Blue Chip*.⁶⁶ Averaging the AEO projected inflation of 1.95% with

⁶⁴ Table A-15. Morningstar SBBI Appendix A Tables, Morningstar Stocks, Bonds, Bills, and Inflation | 1926 – 2015, © 2016. Morningstar has decided to stop publishing the Ibbotson Classic Yearbook, but has provided the Appendix A Tables.

⁶⁵ Table 20. Macroeconomic Indicators. <http://www.eia.gov/forecasts/aeo/>

⁶⁶ 2.25% = (2.30% + 2.20%)/2. See page 10 of Schedule 5.

1 projected inflation of 2.25% results in projected inflation of 2.10% as shown on Line No.
2 4 of Schedule 8.⁶⁷

3 Finally, I averaged historical inflation of 2.67% with the mean projected inflation
4 of 2.10%, resulting in an inflation rate of 2.39% as shown on Line No. 5 of Schedule 8.⁶⁸

5 **Q. HOW DID YOU ESTIMATE THE NOMINAL RISK-FREE RATE?**

6 A. First, as shown on Line No. 6 of Schedule 8 the nominal historical risk-free rate of 5.65%
7 is estimated as the average annual income return long-term U.S. government bonds from
8 the same 1987 – 2015 time period discussed above from SBBI - 2016.⁶⁹

9 Second, as shown on Line No. 7 of Schedule 8, I estimated the nominal projected
10 risk-free rate of 4.65% by averaging the long-range forecasts for the for 2017-2021
11 (4.50%) and 2022-2026 (4.80%) also from the December 1, 2015 *Blue Chip*.⁷⁰

12 Averaging the nominal historical risk-free rate of 5.65% with the nominal
13 projected risk-free of 4.65% results in a nominal projected risk-free rate of 5.15% as
14 shown on Line No. 8 of Schedule 8.⁷¹

15 **Q. HOW DID YOU ESTIMATE THE REAL RISK-FREE RATE?**

16 A. I estimated the real risk-free rate by adjusting the mean nominal risk-free rate of 5.15%
17 by the mean inflation rate of 2.39% as shown on Line No. 5 of Schedule 8, using the
18 formula in Note 4 on Schedule 8, resulting in a mean real risk-free rate of 2.70%⁷².

⁶⁷ $2.10\% = (2.25\% + 1.95\%)/2.$

⁶⁸ $2.39\% = (2.67\% + 2.10\%)/2.$

⁶⁹ Table A-7. SBBI - 2016.

⁷⁰ $4.65\% = (4.50\% + 4.80\%)/2.$ See page 10 of Schedule 5.

⁷¹ $5.15\% = (5.65\% + 4.65\%)/2.$

⁷² $2.70\% = ((1 + 5.15\%)/(1 + 2.39\%)) - 1.$

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1 The resulting FVROR based upon the Commission's methodology is one-half of
2 the 2.70% real risk-free rate, or 1.35%.⁷³

3 **Q. DOES THAT CONCLUDE YOUR DIRECT TESTIMONY?**

4 **A. Yes.**

⁷³

1.35% = 2.70% * 0.50.

EXHIBIT PMA-DT1

PROFESSIONAL QUALIFICATIONS
OF
PAULINE M. AHERN, CRRA
PARTNER
SUSSEX ECONOMIC ADVISORS, LLC

Pauline M. Ahern, CRRA
Partner
Sussex Economic Advisors, LLC

Ms. Ahern has served as a consultant for investor-owned and municipal utilities and authorities for 28 years. As a Certified Rate of Return Analyst (CRRA), she has extensive experience in rate of return analyses, including the development of ratemaking capital structure ratios, senior capital cost rates, and the cost rate of common equity for regulated public utilities. She has testified as an expert witness before 30 regulatory commissions in the U.S. and Canada.

She also maintains the benchmark index against which the American Gas Association's (AGA) Mutual Fund performance is measured. Ms. Ahern has also served as President of the Society of Utility Regulatory and Financial Analysts (SURFA) from 2006-2010 and now sits on its Board of Directors. SURFA is a non-profit organization founded to promote the education and understanding of rate of return analysis which represents utility financial analysts in government, the financial community, industry and academia. She also serves on the Finance/Accounting/Taxation Committees of the National Association of Water Companies. Ms. Ahern is also a member of the Advisory Council, Financial Research Institute, University of Missouri - Robert J. Trulaske, Sr. School of Business. She is also a member of Edison Electric Institute's Cost of Capital Working Group.

PROFESSIONAL HISTORY

Sussex Economic Advisors, LLC (2015 – Present)

Partner

AUS Consultants (1988 – 2015)

Principal

- Offered testimony as an expert witness on the subjects of fair rate of return, cost of capital and related issues before state public utility commissions.
- Provided assistance and support to clients throughout the entire ratemaking litigation process; supervision of the financial analyst and administrative staff in the preparation of fair rate of return and cost of capital testimonies and exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies as well as the preparation of interrogatory responses, as well as rebuttal exhibits.
- Responsible for the production, publishing, and distribution of the AUS Utility Reports (formerly C. A. Turner Utility Reports), which has provided financial data and related ratios for about 80 public utilities (*i.e.*, electric, combination gas and electric, natural gas distribution, natural gas transmission, telephone, and water utilities, on a monthly, quarterly and annual basis) since 1930. Subscribers include utilities, many state regulatory commissions, federal agencies, individuals, brokerage firms, attorneys, as well as public and academic libraries.
- Responsible for maintaining and calculating the performance of the AGA Index, a market capitalization weighted index of the common stocks of the approximately 70 corporate members of the AGA, which serves as the benchmark for the AGA Gas Utility Index Fund.

Assistant Vice President

- Prepared fair rate of return and cost of capital exhibits which were filed along with expert testimony before various state and federal public utility regulatory bodies; supporting exhibits include the determination of an appropriate ratemaking capital structure and the

development of embedded cost rates of senior capital and also support the determination of a recommended return on common equity through the use of various market models, such as, but not limited to, Discounted Cash Flow analysis, Capital Asset Pricing Model and Risk Premium Methodology, as well as an assessment of the risk characteristics of the client utility.

- Assisted in the preparation of responses to any interrogatories received regarding such testimonies filed on behalf of client utilities. Following the filing of fair rate of return testimonies, assisted in the evaluation of opposition testimony in order to prepare interrogatory questions, areas of cross-examination, and rebuttal testimony and evaluated and assisted in the preparation of briefs and exceptions following the hearing process.
- Submitted testimony before state public utility commissions regarding appropriate capital structure ratios and fixed capital cost rates.

Senior Financial Analyst

- Supervised two analysts and assisted in the preparation of fair rate of return and cost of capital exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies; the team also assisted in the preparation of interrogatory responses.
- Evaluated the final orders and decisions of various commissions to determine whether further actions were warranted and to gain insight which assisted in the preparation of future rate of return studies.
- Assisted in the preparation of an article authored by Frank J. Hanley and A. Gerald Harris entitled "Does Diversification Increase the Cost of Equity Capital?" published in the July 15, 1991 issue of Public Utilities Fortnightly.

Administrator of Financial Analysis for AUS Utility Reports

- Oversaw the preparation of this monthly publication, as well as the accompanying annual publication, Financial Statistics - Public Utilities.

Financial Analyst

- Assisted in the preparation of fair rate of return studies including capital structure determination, development of senior capital cost rates, determination of an appropriate rate of return on equity, preparation of interrogatory responses, interrogatory questions of the opposition, areas of cross-examination and rebuttal testimony, as well as preparation of the annual publication C. A. Turner Utility Reports - Financial Statistics - Public Utilities.

Research Dept. of the Regional Economics Division of the Federal Reserve Bank of Boston (1973 - 1975)

Research Assistant

- Involved in the development and maintenance of econometric models to simulate regional economic conditions in New England in order to study the effects of, among other things, the energy crisis of the early 1970's and property tax revaluations on the economy of New England. I was also involved in the statistical analysis and preparation of articles for the New England Economic Review. Also, I was Assistant Editor of New England Business Indicators.

Office of the Assistant Secretary for International Affairs, U.S. Treasury Department, Washington, D.C. (1972)

Research Assistant

- Developed and maintained econometric models which simulated the economy of the United States in order to study the results of various alternate foreign trade policies so that national trade policy could be formulated and recommended.

EDUCATION

M.B.A., Rutgers University, High Honors, 1991
B.A., Clark University, Honors, 1973

DESIGNATIONS AND PROFESSIONAL AFFILIATIONS

Advisory Council

Financial Research Institute
University of Missouri's Trulaske School of Business

Edison Electric Institute

Cost of Capital Working Group

National Association of Water Companies

Member of the Finance/Accounting/Taxation and Rates and Regulation Committees

Society of Utility and Regulatory Financial Analysts

Member, Board of Directors – 2010-2014 President – 2006-2008 and 2008-2010
Secretary/Treasurer – 2004-2006

American Finance Association

Financial Management Association

SPEAKING ENGAGEMENTS

"Leadership in the Financial Services Sector", Guest Professor – Cost of Capital, Business Leader Development Program, Rutgers University School of Business, February 20, 2015, Camden, NJ.

"ROE: Trends & Analysis", American Gas Association, AGA Mini-Forum for the Financial Analysts Community & Finance Committee Meeting, September 11, 2014, The Princeton Club, New York, NY.

Guest Professor, "Measuring Risk", Asset Supervision and Administration Commission of the State Council of the Peoples' Republic of China, Rutgers School of Business, July 21, 2014, New Brunswick, NJ.

Instructor, "Cost of Capital 101", EPCOR Water America, Inc., Regulatory Management Team, June 9, 2014, Phoenix, AZ.

Moderator: Society of Utility Financial Analysts: 46th Financial Forum – "The Rating Agencies' Perspectives: Regulatory Mechanisms and the Regulatory Compact", April 22-25, 2014, Indianapolis, IN.

"The Return on Equity Debate: Its Impact on Budgeting and Investment and Wall Street's View of Risk", National Association of Water Companies – 2014 Indiana Chapter Water Summit, March 13, 2014, Indianapolis, IN.

"Regulatory Training in Financing, Planning, Strategies and Accounting Issues for Publicly- and Privately-Owned Water and Wastewater Utilities", New Mexico State University Center for Public Utilities, October 13-18, 2013, Instructor (Cost of Capital).

"Regulated Utilities – Access to Capital", (panelist) - Innovation: Changing the Future of Energy, 2013 Deloitte Energy Conference, Deloitte Center for Energy Solutions, May 22, 2013, Washington, DC.

"Comparative Evaluation of the Predictive Risk Premium Model, the Discounted Cash Flow Model and the Capital Asset Pricing Model for Estimating the Cost of Common Equity", (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) – Advanced Workshop in Regulation and Competition, 32nd

Annual Eastern Conference of the Center for Research in Regulated Industries (CRRI), May 17, 2013, Rutgers University, Shawnee on the Delaware, PA.

"Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", before the Society of Utility and Regulatory Financial Analysts: 45th Financial Forum, April 17-18, 2013, Indianapolis, IN.

"Issues Surrounding the Determination of the Allowed Rate of Return", before the Staff Subcommittee on Electricity of the National Association of Regulatory Utility Commissioners, Winter 2013 Committee Meetings, February 3, 2013, Washington, DC.

"Leadership in the Financial Services Sector", Guest Professor – Cost of Capital, Business Leader Development Program, Rutgers University School of Business, February 1, 2013, Camden, NJ.

"Analyst Training in the Power and Gas Sectors", SNL Center for Financial Education, Downtown Conference Center at Pace University, New York City, December 12, 2012, Instructor (Financial Statement Analysis).

"Regulatory Training in Financing Planning, Strategies and Accounting Issues for Publicly and Privately Owned Water and Wastewater Utilities", New Mexico State University Center for Public Utilities, October 14-19, 2012, Instructor (Cost of Financial Capital).

"Application of a New Risk Premium Model for Estimating the Cost of Common Equity", Co-Presenter with Dylan W. D'Ascendis, CRRA, AUS Consultants, Edison Electric Institute Cost of Capital Working Group, October 3, 2012, Webinar.

"Application of a New Risk Premium Model for Estimating the Cost of Common Equity", Co-Presenter with Dylan W. D'Ascendis, CRRA, AUS Consultants, Staff Subcommittee on Accounting and Finance of the National Association of Regulatory Commissioners, September 10, 2012, St. Paul, MN.

"Analyst Training in the Power and Gas Sectors", SNL Center for Financial Education, Downtown Conference Center at Pace University, New York City, August 7, 2012, Instructor (Financial Statement Analysis).

"Advanced Regulatory Training in Financing Planning, Strategies and Accounting Issues for Publicly and Privately Owned Water and Wastewater Utilities", New Mexico State University Center for Public Utilities, May 13-17, 2012, Instructor (Cost of Financial Capital).

"A New Approach for Estimating the Equity Risk Premium Applied to Public Utilities", before the Finance and Regulatory Committees of the National Association of Water Companies, March 29, 2012, Telephonic Conference.

"A New Approach for Estimating the Equity Risk Premium Applied to Public Utilities", (co-presenter with Frank J. Hanley, Principal and Director, AUS Consultants) before the Water Committee of the National Association of Regulatory Utility Commissioners' Winter Committee Meetings, February 7, 2012, Washington, DC.

"A New Approach for Estimating the Equity Risk Premium Applied to Public Utilities", (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University and Frank J. Hanley, Principal and Director, AUS Consultants) before the Wall Street Utility Group, December 19, 2011, New York City, NY.

"Advanced Cost and Finance Issues for Water", (co-presenter with Gary D. Shambaugh, Principal & Director, AUS Consultants), 2011 Advanced Regulatory Studies Program – Ratemaking, Accounting and Economics, September 29, 2011, Kellogg Center at Michigan State University – Institute for Public Utilities, East Lansing, MI.

"Public Utility Betas and the Cost of Capital", (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers

University) – Advanced Workshop in Regulation and Competition, 30th Annual Eastern Conference of the Center for Research in Regulated Industries (CRRRI), May 20, 2011, Rutgers University, Skytop, PA.

Moderator: Society of Utility and Regulatory Financial Analysts: 43rd Financial Forum – “Impact of Cost Recovery Mechanisms on the Perception of Public Utility Risk”, April 14-15, 2011, Washington, DC.

“A New Approach for Estimating the Equity Risk Premium for Public Utilities”, (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) – Hot Topic Hotline Webinar, December 3, 2010, Financial Research Institute of the University of Missouri.

“A New Approach for Estimating the Equity Risk Premium for Public Utilities”, (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) before the Indiana Utility Regulatory Commission Cost of Capital Task Force, September 28, 2010, Indianapolis, IN.

Tomorrow’s Cost of Capital: Cost of Capital Issues 2010, Deloitte Center for Energy Solutions, 2010 Deloitte Energy Conference, “Changing the Great Game: Climate, Customers and Capital”, June 7-8, 2010, Washington, DC.

“A New Approach for Estimating the Equity Risk Premium for Public Utilities”, (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) – Advanced Workshop in Regulation and Competition, 29th Annual Eastern Conference of the Center for Research in Regulated Industries (CRRRI), May 20, 2010, Rutgers University, Skytop, PA.

Moderator: Society of Utility and Regulatory Financial Analysts: 42nd Financial Forum – “The Changing Economic and Capital Market Environment and the Utility Industry”, April 29-30, 2010, Washington, DC.

“A New Model for Estimating the Equity Risk Premium for Public Utilities” (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) – Spring 2010 Meeting of the Staff Subcommittee on Accounting and Finance of the National Association of Regulatory Utility Commissioners, March 17, 2010, Charleston, SC.

“New Approach to Estimating the Cost of Common Equity Capital for Public Utilities” (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) - Advanced Workshop in Regulation and Competition, 28th Annual Eastern Conference of the Center for Research in Regulated Industries (CRRRI), May 14, 2009, Rutgers University, Skytop, PA.

Moderator: Society of Utility and Regulatory Financial Analysts: 41st Financial Forum – “Estimating the Cost of Capital in Today’s Economic and Capital Market Environment”, April 16-17, 2009, Washington, DC.

“Water Utility Financing: Where Does All That Cash Come From?”, AWWA Pre-Conference Workshop: Water Utility Ratemaking, March 25, 2008, Atlantic City, NJ.

PAPERS

“Comparative Evaluation of the Predictive Risk Premium Model™, the Discounted Cash Flow Model and the Capital Asset Pricing Model”, co-authored with Richard A. Michelfelder, Ph.D., Rutgers University, Dylan W. D’Ascendis, and Frank J. Hanley, The Electricity Journal, May, 2013.

“A New Approach for Estimating the Equity Risk Premium for Public Utilities”, co-authored with Frank J. Hanley and Richard A. Michelfelder, Ph.D., Rutgers University, The Journal of Regulatory Economics (December 2011), 40:261-278.

“Comparable Earnings: New Life for Old Precept” co-authored with Frank J. Hanley, Financial Quarterly Review, (American Gas Association), Summer 1994.

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Arizona Corporation Commission				
Arizona Water Company	08/15	Arizona Water Company	W-01445A-15-0277	Return on Equity
EPCOR Water Arizona, Inc.	03/14	EPCOR Water Arizona, Inc.	WS-01303A-14-0010	Return on Equity
Arizona Water Company	04/12	Arizona Water Company - Eastern Group	W-01445A-11-0310	DSIC Mechanism - Credit Quality; Return on Equity
Chaparral City Water Company	04/13	Chaparral City Water Company	W-02113A-13-118	Return on Equity
Arizona Water Company	08/12	Arizona Water Company - Northern Group	W-01445A-12-0348	Return on Equity
Bermuda Water Co.	09/11	Bermuda Water Co.	W-01812A-10-0521	Return on Equity
Arkansas Public Service Commission				
United Water Arkansas, Inc.	03/10	United Water Arkansas, Inc.	09-130-U	Fair Rate of Return
United Water Arkansas, Inc.	12/06	United Water Arkansas, Inc.	06-160-U	Fair Rate of Return
United Water Arkansas, Inc.	09/03	United Water Arkansas, Inc.	03-161-U	Return on Equity
Arkansas Western Gas Company d/b/a Associated Natural Gas Company	02/97	Associated Natural Gas Company	97-019-U	Capital Structure
Arkansas Western Gas Company	02/97	ANG Division - Arkansas	97-019-I	Capital Structure
Arkansas Western Gas Company	02/96	ANG Division - Arkansas	GR-97-272	Return on Equity
Arkansas Eastern Gas Company	02/96	Arkansas Western Gas Company	96-030-U	Capital Structure
British Columbia Utilities Commission				
Corix Utilities, Inc.	07/13	Corix Utilities, Inc.	Generic Cost of Capital Proceeding - Phase II	Return on Equity
Corix Utilities, Inc.	08/12	Corix Utilities, Inc.	Generic Cost of Capital Proceeding - Phase I	Return on Equity
California Public Utilities Commission				
San Gabriel Valley Water Company	05/12	San Gabriel Valley Water Company	12-05-002	Return on Equity
San Jose Water Company	05/09	San Jose Water Company	U-168-W	Return on Equity
San Jose Water Company	05/11	San Jose Water Company	U-168-W	Return on Equity
Thames RWE re: California-American Water Co.	05/02	Thames RWE re: California-American Water Co.	02-01-036	Return on Equity
Connecticut Department of Public Utility Control				
Aquarion Water Co. of Connecticut	03/13	Aquarion Water Co. of Connecticut	13-02-30	Return on Equity
Connecticut Water Company	01/10	Connecticut Water Company	09-12-11	Return on Equity
Aquarion Water Company	03/10	Aquarion Water Company	10-02-13	Return on Equity

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United Water Connecticut	09/10	United Water Connecticut	10-09-08	Fair Rate of Return
United Water Connecticut	05/07	United Water Connecticut	07-05-44	Fair Rate of Return
Delaware Public Service Commission				
SUEZ Water Delaware Inc.	02/16	SUEZ Water Delaware Inc.		Fair Rate of Return
Artesian Water Company	04/14	Artesian Water Company	14-132	Fair Rate of Return
Tidewater Utilities, Inc.	11/13	Tidewater Utilities, Inc.	13-466	Return on Equity
Tidewater Utilities, Inc.	09/11	Tidewater Utilities, Inc.	11-397	Fair Rate of Return
Artesian Water Company	04/11	Artesian Water Company	11-207	Fair Rate of Return
United Water Delaware, Inc.	12/10	United Water Delaware, Inc.	10-421	Fair Rate of Return
United Water Delaware, Inc.	02/09	United Water Delaware, Inc.	09-60	Fair Rate of Return
Tidewater Utilities, Inc.	01/09	Tidewater Utilities, Inc.	09-29	Fair Rate of Return
Artesian Water Company	04/08	Artesian Water Company	14-132	Fair Rate of Return
Sussex Shores Water Company	10/07	Sussex Shores Water Company	07-278	Fair Rate of Return
United Water Delaware, Inc.	05/06	United Water Delaware, Inc.	06-174	Fair Rate of Return
Tidewater Utilities, Inc.	04/06	Tidewater Utilities, Inc.	06-145	Fair Rate of Return
Tidewater Utilities, Inc.	04/04	Tidewater Utilities, Inc.	04-152	Fair Rate of Return
Tidewater Utilities, Inc.	01/02	Tidewater Utilities, Inc.	02-28	Fair Rate of Return
Sussex Shores Water Company	11/99	Sussex Shores Water Company	99-576	Fair Rate of Return
Tidewater Utilities, Inc.	9/99	Tidewater Utilities, Inc.	99-446	Fair Rate of Return
Long Neck Water Company	01/99	Long Neck Water Company	99-31	Overall Rate of Return
United Water Delaware, Inc.	03/98	United Water Delaware	98-98	Return on Equity
United Water Delaware, Inc.	08/96	United Water Delaware, Inc.	96-164	Capital Structure and Fixed Capital Cost Rates
Florida Public Service Commission				
Utilities Inc.	08/08	Utilities Inc.	080006-WS	Fair Rate of Return
Utilities, Inc. of Florida	06/03	Utilities, Inc. of Florida	020071-WS	Fair Rate of Return
Hawaiian Public Utilities Commission				
GTE Hawaiian Telephone	10/96	GTE Hawaiian Telephone	95-0054	Common Equity Cost, Capital Structure and Storm Damage Cost Recovery
GTE Hawaiian Telephone	06/96	GTE Hawaiian Telephone	95-0051/94-0298	Self-Insurance Property Damage Reserve-Ratepayer Responsibility
Idaho Public Utility Commission				
United Water Idaho, Inc.	05/15	United Water Idaho, Inc.	UWI-W-15-01	State Property Tax Study

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United Water Idaho, Inc.	08/11	United Water Idaho, Inc.	UWI-W-11-02	Fair Rate of Return
United Water Idaho, Inc.	11/04	United Water Idaho, Inc.	UWI-W-04-04	Fair Rate of Return
Illinois Commerce Commission				
Illinois-American Water Company	10/11	Illinois-American Water Company	11-0767	Return on Equity
Apple Canyon Utility Co. / Lake Wildwood Utilities Corp.	04/10	Apple Canyon Utility Co. / Lake Wildwood Utilities Corp.	09-0548/0549	Fair Rate of Return
Illinois American Water Company	05/09	Illinois American Water Company	09-0319	Return on Equity
Illinois-American Water Company	08/07	Illinois-American Water Company	07-0507	Return on Equity
Aqua Illinois, Inc.	02/06	Aqua Illinois, Inc. - Kankakee Water Division	06-0285	Return on Equity
Aqua Illinois	12/04	Aqua Illinois - Woodhaven Water & Sewer Divisions	05-0071	Return on Equity
Aqua Illinois	12/04	Aqua Illinois - Oak Run Water & Sewer Divisions	05-0072	Return on Equity
United Water Idaho, Inc.	11/04	United Water Idaho, Inc.	UWI-W-04-04	Fair Rate of Return
Aqua Illinois	05/04	Aqua Illinois - Vermillion Water Division	04-0442	Return on Equity
Aqua Illinois (formerly Consumers Ill. Water Co.)	05/03	Aqua Illinois (formerly Consumers Ill. Water Co.)	03-0403	Fair Rate of Return
Aqua Illinois (formerly Consumers Ill. Water Co.)	04/00	Aqua Illinois (formerly Consumers Ill. Water Co.)	00-0337, 00-0338, 00-0339	Return on Equity
Indiana Utility Regulatory Commission				
Indiana-American Water Company	01/14	Indiana-American Water Company	44450	Return on Equity
Pioneer Water LLC	10/13	Pioneer Water LLC	4434	Return on Equity
Utility Center, Inc.	03/10	Utility Center, Inc.	43874	Fair Rate of Return
Twin Lakes Utilities, Inc.	11/06	Twin Lakes Utilities, Inc.	43128	Fair Rate of Return
Utility Center, Inc.	08/07	Utility Center, Inc.	43331	Fair Rate of Return
Twin Lakes Utilities, Inc.	09/03	Twin Lakes Utilities, Inc.	42488	Fair Rate of Return
United Water West Lafayette, Inc.	01/97	United Water West Lafayette, Inc.	41046	Return on Equity
United Water Indiana, Inc.	01/97	United Water Indiana, Inc.	41047	Return on Equity
Iowa Utilities Board				
Iowa-American Water Company	04/11	Iowa-American Water Company	RPU-2011-0001	Return on Equity
Iowa-American Water Company	04/09	Iowa-American Water Company	RPU-2009-0004	Return on Equity
Iowa-American Water Company	08/07	Iowa-American Water Company	RPU-2007-0003	Return on Equity
Kentucky Public Service Commission				
Water Service Corp. of Kentucky	01/09	Water Service Corp. of Kentucky	2008-00563	Fair Rate of Return

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Water Service Corp. of Kentucky	08/05	Water Service Corp. of Kentucky	2005-00325	Fair Rate of Return
Louisiana Public Service Commission				
Louisiana Water Service, Inc.	03/08	Louisiana Water Service, Inc.	U-30553	Fair Rate of Return
Maine Public Service Commission				
Maine Water Company	12/13	Maine Water Company – Camden & Rockland Division	2013-00362	Return on Equity
Consumers Maine Water Company	05/00	Consumers Maine Water Company	2000-96 & 2000-175	Return on Equity
Maryland Public Service Commission				
Greenridge Utilities, Inc.	05/03	Greenridge Utilities, Inc.	8962	Fair Rate of Return
Michigan Public Service Commission				
Alpena Power Company	05/09	Alpena Power Company	U-15935	Fair Rate of Return
Alpena Power Company	04/07	Alpena Power Company	U-15250	Fair Rate of Return
Alpena Power Company	07/99	Alpena Power Company	U-12000	Return on Equity
Missouri Public Service Commission				
Missouri Gas Energy	09/13	Missouri Gas Energy	GR-2014-0007	Return on Equity
Missouri-American Water Company	06/11	Missouri-American Water Company	WR-2011-0337 / SR-2011-0338	Fair Rate of Return
Missouri-American Water Company	10/09	Missouri-American Water Company	WR-2010-0131	Return on Equity
Missouri-American Water Company	03/08	Missouri-American Water Company	WR-2008-0311 / SR-2008-0312	Return on Equity
Missouri-American Water Company	12/06	Missouri-American Water Company	WR-2007-0216 / WR-2007-0217	Return on Equity
Missouri-American Water Company	05/03	Missouri-American Water Company	WR-2003-0500 & WC-2004-0168	Fair Rate of Return
Arkansas Western Gas Company	02/97	ANG Division – Missouri	GR-97-272	Capital Structure
New Hampshire Public Utilities Commission				
Aquarion Water Co. of New Hampshire, Inc.	03/13	Aquarion Water Co. of New Hampshire, Inc.	DW 12-085	Return on Equity
New Jersey Board of Public Utilities				
Aqua New Jersey, Inc.	1/16	Aqua New Jersey, Inc.		Return on Equity
United Water New Jersey, Inc.	10/15	United Water New Jersey, Inc.	WR-15101177	Return on Equity
United Water Toms River, Inc.	02/15	United Water Toms River, Inc.	W-01303A-14-0010	Return on Equity
Atlantic City Sewerage Company	10/14	Atlantic City Sewerage Company	WR-14101263	Return on Equity
Aqua New Jersey, Inc.	01/14	Aqua New Jersey, Inc.	WR-14010019	Fair Rate of Return
Middlesex Water Company	11/13	Middlesex Water Company	WR-13111059	Return on Equity
United Water New Jersey, Inc.	03/13	United Water New Jersey, Inc.	WR-13030210	Fair Rate of Return

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Jersey Central Power & Light Company	11/12	Jersey Central Power & Light Company	ER-12111052	Return on Equity
United Water Toms River, Inc.	09/12	United Water Toms River, Inc.	WR-12090830	Fair Rate of Return
Pinelands Water Company	08/12	Pinelands Water Company	WR-12080735	Return on Equity
Pinelands Wastewater Company	08/12	Pinelands Wastewater Company	WR-12080734	Return on Equity
Middlesex Water Company	01/12	Middlesex Water Company	WR-12010027 / PUC 1653-2012	Fair Rate of Return
Aqua New Jersey, Inc.	12/11	Aqua New Jersey, Inc.	WR 11120859	Fair Rate of Return
The New Jersey Utilities Association	10/11	The New Jersey Utilities Association	PUC 07146-09 (OAL) / WO-090148 (BPU)	Return on Equity
United Water New Jersey, Inc.	07/11	United Water New Jersey, Inc.	WR-11070428	Fair Rate of Return
The Atlantic City Sewerage Company	04/11	The Atlantic City Sewerage Company	WR-11040247	Fair Rate of Return
United Water Great Gorge, Inc./United Water Vernon Sewerage, Inc.	10/10	United Water Great Gorge, Inc./United Water Vernon Sewerage, Inc.	WR-10100785	Fair Rate of Return
United Water New Jersey, Inc.	12/09	United Water New Jersey, Inc.	WR-09120987	Fair Rate of Return
Aqua New Jersey, Inc.	12/09	Aqua New Jersey, Inc.	WR-09121005	Fair Rate of Return
The Atlantic City Sewerage Company	11/09	The Atlantic City Sewerage Company	WR-09110940	Fair Rate of Return
United Water Toms River, Inc.	11/09	United Water Toms River, Inc.	WR-09110934	Fair Rate of Return
Middlesex Water Company	08/09	Middlesex Water Company	WR-09080666	Fair Rate of Return
United Water New Jersey, Inc.	09/08	United Water New Jersey, Inc.	WR-08090710	Fair Rate of Return
United Water West Milford, Inc.	09/08	United Water West Milford, Inc.	WR-08100928	Fair Rate of Return
United Water Arlington Hills, Inc.	09/08	United Water Arlington Hills, Inc.	WR-08100929	Fair Rate of Return
Applied Wastewater Management	08/08	Applied Wastewater Management	WR-08080550	Fair Rate of Return
Middlesex Water Company	04/08	Pinelands Water Company	WR-08040282	Return on Equity
United Water Toms River, Inc.	03/08	United Water Toms River, Inc.	R-WR-08030139	Fair Rate of Return
Aqua New Jersey, Inc.	12/07	Aqua New Jersey, Inc.	WR-07120955	Fair Rate of Return
The Atlantic City Sewerage Company	11/07	The Atlantic City Sewerage Company	WR-0007110866	Fair Rate of Return
Middlesex Water Company	04/07	Middlesex Water Company	PUCRL 05663-2007N	Fair Rate of Return
United Water New Jersey, Inc.	02/07	United Water New Jersey, Inc.	WR-07020135	Fair Rate of Return
Aqua New Jersey, Inc.	12/05	Aqua New Jersey, Inc.	WR-05121022	Fair Rate of Return
Pinelands Water Company	08/05	Pinelands Water Company	WR-05080681	Return on Equity
Pinelands Wastewater Company	08/05	Pinelands Wastewater Company	WR-05080680	Return on Equity
Middlesex Water Company	05/05	Middlesex Water Company	WR-05050451	Fair Rate of Return

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Pinelands Wastewater Company	12/03	Pinelands Wastewater Company	WR-031201017	Return on Equity
Pinelands Water Company	12/03	Pinelands Water Company	WR-031201016	Return on Equity
Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.)	12/03	Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.)	WR-03120974	Return on Equity
Middlesex Water Company	11/03	Middlesex Water Company	WR-03110900	Fair Rate of Return
Mount Holly Water Company	07/03	Mount Holly Water Company	WR-03070509 & OAL PUCRL 07280-2003N	Fair Rate of Return
Elizabethtown Water Company	07/03	Elizabethtown Water Company	WR-03070510 & OAL PUCRL 07281-2003N	Return on Equity
New Jersey-American Water Company	04/03	New Jersey-American Water Company	WR-03070511 & OAL PUCRL 07279-2003N	Fair Rate of Return
Thames RWE re: New Jersey-American Water Co.	08/02	Thames RWE re: New Jersey-American Water Co.	WM-01120833	Return on Equity
Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.)	03/02	Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.)	WR-02030133	Return on Equity
Elizabethtown Water Company	04/01	Elizabethtown Water Company	WR-01040205	Overall Fair Rate of Return
Middlesex Water Company	06/00	Middlesex Water Company	WR-00060362	Fair Rate of Return
Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.)	03/00	Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.)	WR-00030174 & OAL PUCRS04524-00S	Return on Equity
Middlesex Water Company	09/98	Middlesex Water Company	98-090795	Fair Rate of Return
Middlesex Water Company	11/96	Middlesex Water Company	96-110818	Return on Equity
New York State Public Service Commission				
SUEZ New York Inc.	2/16	SUEZ New York Inc.	16-W-0130	Fair Rate of Return
United Water New Rochelle, Inc. / United Water West Chester, Inc.	11/13	United Water New Rochelle, Inc. / United Water West Chester, Inc.	13-W-0539/13-W-564	Return on Equity
United Water New York, Inc.	07/13	United Water New York, Inc.	13-W-0295	Fair Rate of Return
Long Island American Water Company d/b/a Long Island American Water for Water Service	05/11	Long Island American Water Company	11-W-0200	Return on Equity
United Water Owego-Nichols, Inc.	02/11	United Water Owego-Nichols, Inc.	11-W-0082	Fair Rate of Return
United Water Westchester, Inc.	11/09	United Water Westchester, Inc.	09-W-0828	Fair Rate of Return
United Water New Rochelle Inc.	11/09	United Water New Rochelle Inc.	09-W-0824	Fair Rate of Return
United Water New York, Inc.	09/09	United Water New York, Inc.	09-W-0731	Fair Rate of Return
United Water Owego/Nichols, Inc.	05/07	United Water Owego/Nichols, Inc.	07-W-0639 / 07-W0872	Fair Rate of Return
United Water New York, Inc. / South County	01/06	United Water New York, Inc.	Cases 06-W-0131 and 06-W-0244	Fair Rate of Return
United Water New Rochelle, Inc.	09/04	United Water New Rochelle, Inc.	04-W-1221	Fair Rate of Return

North Carolina Utility Commission					
Carolina Water Service of North Carolina	08/15	Carolina Water Company of North Carolina	W-354, Sub 344	Return on Equity	
Aqua North Carolina, Inc.	12/13	Aqua North Carolina, Inc.	W-218, Sub 363	Fair Rate of Return	
Carolina Water Service, Inc. of NC.	10/13	Carolina Water Service, Inc. of NC.	W-354 Sub 336	Fair Rate of Return	
Pluris, LLC	08/12	Pluris, LLC	W-1282, Sub 8	Return on Equity	
Aqua North Carolina, Inc.	05/11	Aqua North Carolina, Inc.	W-218, Sub 319	Fair Rate of Return	
Carolina Water Service, Inc. of NC	10/10	Carolina Water Service, Inc. of NC	W-354, Sub 324	Fair Rate of Return	
Carolina Water Service, Inc. of NC	10/10	Carolina Water Service, Inc. of NC - Ops. in Currituck Co.	W-354, Sub 327	Fair Rate of Return	
Transylvania Utilities, Inc.	05/06	Transylvania Utilities, Inc.	W-1012, Sub 7	Fair Rate of Return	
Carolina Pines Utilities, Inc.	04/04	Carolina Pines Utilities, Inc.	W-1151	Return on Equity	
Transylvania Utilities, Inc.	04/04	Transylvania Utilities, Inc.	W-1012, Sub 5	Return on Equity	
Nero Utilities, Inc.	04/04	Nero Utilities, Inc.	W-1152	Return on Equity	
Pennsylvania Public Utility Commission					
United Water Pennsylvania Inc.	01/15	United Water Pennsylvania Inc.	R-2015-2462523	Return on Equity	
Penn Estates Utilities, Inc.	12/11	Penn Estates Utilities, Inc.	R-2011-2255159	Return on Equity	
United Water Pennsylvania, Inc.	05/11	United Water Pennsylvania, Inc.	R-2011-2232985	Fair Rate of Return	
United Water Pennsylvania, Inc.	09/09	United Water Pennsylvania, Inc.	R-2009-2122887	Fair Rate of Return	
Penn Estates Utilities, Inc. (Water) / (Sewer)	09/09	Penn Estates Utilities, Inc. (Water) / (Sewer)	R-2009-2117532 / R-2009-2117400	Fair Rate of Return	
Utilities, Inc. - Westgate	09/09	Utilities, Inc. - Westgate	R-2009-2117389	Fair Rate of Return	
Utilities, Inc. of Pennsylvania	09/09	Utilities, Inc. of Pennsylvania	R-2009-2117402	Fair Rate of Return	
Trigen-Philadelphia Energy Corp.	06/09	Trigen-Philadelphia Energy Corp.	R-2009-2111011	Fair Rate of Return	
The Columbia Water Company	12/08	The Columbia Water Company	R-2008-2045157	Return on Equity	
The Newtown Artesian Water Company	11/08	The Newtown Artesian Water Company		Fair Rate of Return	
NRG Energy Center Harrisburg	03/08	NRG Energy Center Harrisburg	R-2008-2042293	Fair Rate of Return	
Total Environmental Solutions, Inc. - Treasure Lake Water Division	02/08	Total Environmental Solutions, Inc. - Treasure Lake Water Division	R-2008-2028395	Fair Rate of Return	
Total Environmental Solutions, Inc. - Treasure Lake Sewer Division	02/08	Total Environmental Solutions, Inc. - Treasure Lake Sewer Division	R-00072493	Fair Rate of Return	
Emporium Water Company	06/06	Emporium Water Company	R-00072495	Fair Rate of Return	
NRG Energy Center Pittsburgh	06/06	NRG Energy Center Pittsburgh	R-00061297	Fair Rate of Return	
City of DuBois, PA	04/06	City of DuBois, PA	R-00061435	Fair Rate of Return	
United Water Pennsylvania, Inc.	01/06	United Water Pennsylvania, Inc.	R-00050671	Fair Rate of Return	
			R-00051186	Fair Rate of Return	

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Valley Energy, Inc.	10/04	Valley Energy, Inc.	R-00049345	Fair Rate of Return
Borough of Hanover	08/02	Borough of Hanover	R-00027522	Fair Rate of Return
Audubon Water Company	04/02	Audubon Water Company	R-00027104	Fair Rate of Return
Wellsboro Electric Company	10/01	Wellsboro Electric Company	R-00016356	Fair Rate of Return
Emporium Water Company	09/00	Emporium Water Company	R-00005050	Fair Rate of Return
Penn Estates Utilities, Inc.	01/00	Penn Estates Utilities, Inc.	R-00005031 & R-00005032	Fair Rate of Return
Pittsburgh Thermal, L.P.	11/99	Pittsburgh Thermal, L.P.	R-00994641	Fair Rate of Return
PG Energy	03/98	PG Energy	R-009880	Capital Structure and Embedded Fixed Capital Cost Rates
Western Utilities, Inc.	08/97	Western Utilities, Inc.	R-00963856	Fair Rate of Return
PG Energy	05/96	PG Energy	R-0096312	Capital Structure and Embedded Fixed Capital Cost Rates
Public Service Commission of Nevada				
Utilities Inc. of Central Nevada	06/15	Utilities Inc. of Central Nevada	15-06063	Fair Rate of Return
Utilities Inc. of Central Nevada	12/09	Utilities Inc. of Central Nevada	09-12017	Fair Rate of Return
Utilities Inc., of Nevada	06/09	Utilities Inc., of Nevada	09-06037	Fair Rate of Return
Spring Creek Utilities, Inc.	06/08	Spring Creek Utilities, Inc.	08-06036	Fair Rate of Return
Utilities, Inc. of Central Nevada	12/06	Utilities, Inc. of Central Nevada	06-12023	Fair Rate of Return
Spring Creek Utilities, Inc.	04/06	Spring Creek Utilities, Inc.	06-01002	Fair Rate of Return
Public Service Commission of South Carolina				
United Utility Companies, Inc.	09/13	United Utility Companies, Inc.	2013-199-WS	Capital Structure
Utilities Services of South Carolina	09/13	Utilities Services of South Carolina	2013-201-WS	Capital Structure
Tega Cay Water Services Inc.	12/12	Tega Cay Water Services Inc.	2012-177-WS	Fair Rate of Return
Carolina Water Service, Inc.	08/11	Carolina Water Service, Inc.	2011-47-WS	Fair Rate of Return
Tega Cay Water Service, Inc.	04/10	Tega Cay Water Service, Inc.	2009-473-WS	Fair Rate of Return
United Utility Companies, Inc.	02/10	United Utility Companies, Inc.	2009-479-WS	Fair Rate of Return
Utilities Services of South Carolina	11/07	Utilities Services of South Carolina	2007-286-WS	Fair Rate of Return
Southland Utilities, Inc.	09/07	Southland Utilities, Inc.	2007-244-W	Fair Rate of Return
Tega Cay Water Service, Inc.	07/06	Tega Cay Water Service, Inc.	2006-97-WS	Return on Equity
United Utility Companies, Inc.	07/06	United Utility Companies, Inc.	2006-107-W/S	Fair Rate of Return
Carolina Water Service, Inc.	06/06	Carolina Water Service, Inc.	2006-92-W/S	Fair Rate of Return
Utilities Services of South Carolina	11/05	Utilities Services of South Carolina	2005-217-WS	Fair Rate of Return
Carolina Water Service of South	04/05	Carolina Water Service of South	2004-357-W/S	Fair Rate of Return

ATTACHMENT A
TESTIMONY LISTING OF PAULINE AHERN

Carolina		Carolina		
United Utility Companies	01/02	United Utility Companies		Fair Rate of Return
Carolina Water Service of South Carolina	06/01	Carolina Water Service of South Carolina	2000-0210-W/S	Fair Rate of Return
Public Utility Commission of Ohio				
Aqua Ohio, Inc.	12/13	Aqua Ohio, Inc.	13-2124-WW-AIR	Return on Equity
Ohio American Water Company	8/12	Ohio American Water Company	11-4161-WS-AIR	Fair Rate of Return
Ohio American Water Company	6/09	Ohio American Water Company	09-391-WS-AIR	Fair Rate of Return
Ohio American Water Company	10/06	Ohio American Water Company	06-433-WS-AIR	Fair Rate of Return
Ohio-American Water Company	11/04	Ohio-American Water Company	03-2390-WS-AIR	Return on Equity
Regulatory Commission of Alaska				
Fairbanks Natural Gas, LLC	6/14	Fairbanks Natural Gas, LLC	U-14-102	Fair Rate of Return
Rhode Island Public Utilities Commission				
United Water Rhode Island, Inc.	8/13	United Water Rhode Island, Inc.	4434	Fair Rate of Return
United Water Rhode Island, Inc.	6/11	United Water Rhode Island, Inc.	4255	Fair Rate of Return
Virginia State Corporation Commission				
Aqua Virginia, Inc.	8/14	Aqua Virginia, Inc.	PUE-2014-00045	Return on Equity
Massanutten Public Service Corporation	9/09	Massanutten Public Service Corporation	PUE-2009-00041	Return on Equity
Land'Or Utility Company	12/06	Land'Or Utility Company	PUE-2006-00128	Return on Equity
Massanutten Public Service Corporation	12/06	Massanutten Public Service Corporation	PUE-2006-00126	Return on Equity
Reston Lake Anne Air Conditioning Corp.	5/12	Reston Lake Anne Air Conditioning Corp.	PUE-2011-00130	Return on Equity
Aqua Virginia, Inc.	10/11	Aqua Virginia, Inc. (Monticello)	PUE-2005-00080	Return on Equity
Aqua Virginia, Inc.	10/11	Aqua Virginia, Inc. - Sydnor Hydrodynamics, Inc.	PUE-2011-00099	Return on Equity
United Water Virginia, Inc.	10/97	United Water Virginia, Inc.	PUE-2097-0544	Fair Rate of Return
Washington Utilities & Transportation Commission				
Washington Natural Gas Company	03/95	Washington Natural Gas Company	UG-950278	Capital Structure Ratios - Fixed Capital Cost Rates

EXHIBIT PMA-DT2

Table of Contents
to Exhibit PMA-DT2
of Pauline M. Ahern, CRRA

	<u>Schedule</u>
Summary of Cost of Capital and Fair Rate of Return	1
Capital Intensity and Depreciation Rates for EPCOR Water Arizona, Inc. and Utility Company Groups and Industry Averages	2
Financial Profile of EPCOR Water Arizona, Inc. and the Proxy Group of Eight Water Companies	3
Application of the Discounted Cash Flow Model (DCF) to the Proxy Group of Eight Water Companies	4
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Estimated Market Capitalization for EPCOR Water Arizona, Inc. and the Proxy Group of Eight Water Companies	7
Calculation of the Fair Value Increment Rate of Return	8

EPCOR Water Arizona, Inc.
Brief Summary of Common Equity Cost Rate

Schedule 1

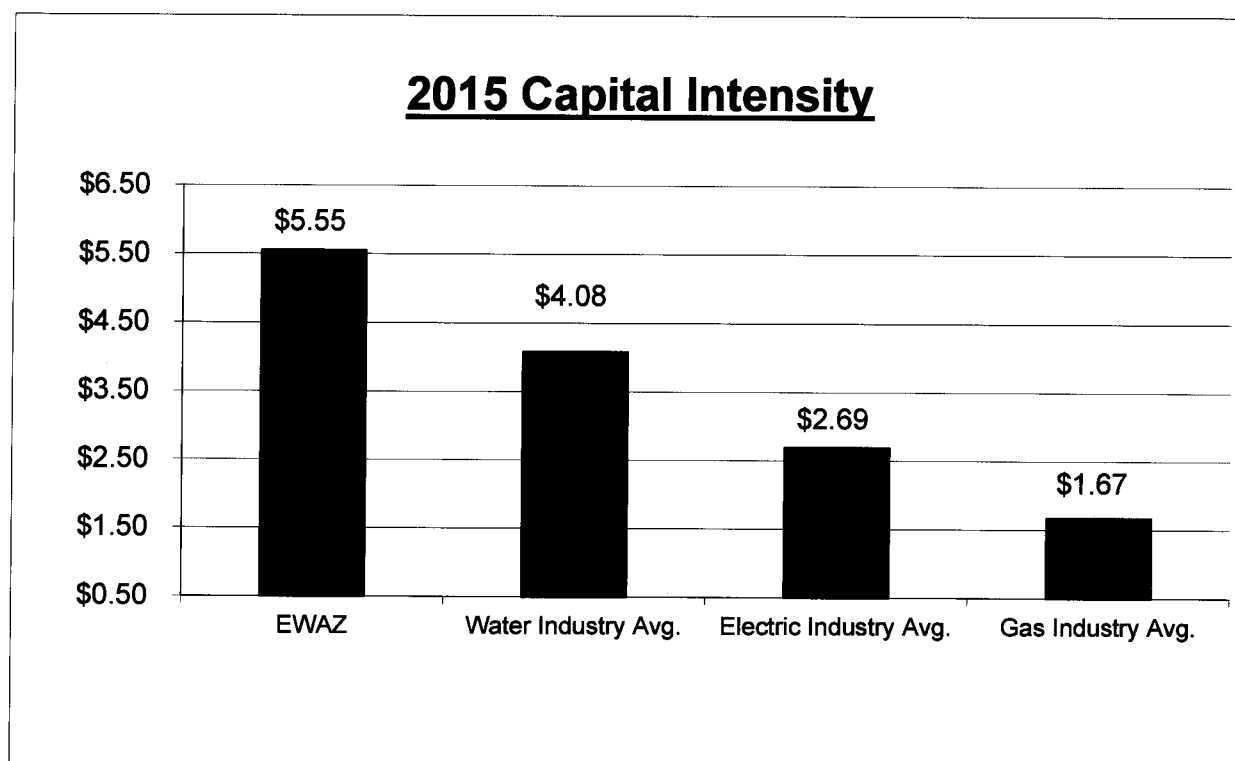
<u>Line No.</u>	<u>Principal Methods</u>	<u>Proxy Group of Eight Water Companies</u>
1.	Discounted Cash Flow Model (DCF) (1)	8.31%
2.	Risk Premium Model (RPM) (2)	10.75%
3.	Capital Asset Pricing Model (CAPM) (3)	<u>10.10%</u>
4.	Indicated Common Equity Cost Rate before Adjustment for Business Risks	10.15%
5.	Credit Risk Adjustment (4)	0.20%
6.	Business Risk Adjustment (5)	<u>0.30%</u>
7.	Indicated Common Equity Cost Rate	<u>10.65%</u>
8.	Recommended Common Equity Cost Rate	<u>10.65%</u>

- Notes: (1) From Schedule 4.
(2) From page 1 of Schedule 5.
(3) From page 1 of Schedule 6.
(4) Credit risk adjustment to reflect the financial risk of the capital structure employed by
for rate making purposes relative to the proxy group as detailed in the accompanying
direct testimony.
(5) Business risk adjustment to reflect EPCOR Water Arizona, Inc.'s greater business risk due
to its small size relative to the proxy group as previously detailed in the direct testimony.

EPCOR Water Arizona, Inc.
2015 Capital Intensity of EPCOR Water Arizona, Inc. and
Utility Company Groups and Industry Averages

Schedule 2

	Average Net Plant (\$ mill)	Total Operating Revenue (\$ mill)	Capital Intensity (\$)	Capital Intensity EPCOR Water Arizona, Inc. v. Other Industries (times)
EPCOR Water Arizona, Inc.	\$ 658.00	\$ 118.58	\$ 5.55	--
Water Industry Average	\$ 2,855.71	\$ 699.31	\$ 4.08	136.03%
Electric Industry Average	\$ 19,285.21	\$ 7,167.08	\$ 2.69	206.32%
Gas Industry Average	\$ 4,557.26	\$ 2,731.18	\$ 1.67	332.34%



Notes:

Capital Intensity is equal to Average Net Plant divided by Total Operating Revenue.

Source of Information:

Company Annual Forms 10-K

EWAZ's Annual Report to the Arizona Corporation Commission

EPCOR Water Arizona, Inc.
CAPITALIZATION AND FINANCIAL STATISTICS (1)
2011 - 2015, inclusive

Schedule 3
Page 1 of 3

	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	
	(MILLIONS OF DOLLARS)					
<u>CAPITALIZATION STATISTICS</u>						
<u>AMOUNT OF CAPITAL EMPLOYED</u>						
TOTAL PERMANENT CAPITAL	\$ 427.391	\$ 420.685	\$ 402.720	\$ 392.586	\$ 356.159	
SHORT-TERM DEBT	-	-	-	-	-	
TOTAL-CAPITAL EMPLOYED	<u>\$ 427.391</u>	<u>\$ 420.685</u>	<u>\$ 402.720</u>	<u>\$ 392.586</u>	<u>\$ 356.159</u>	
<u>INDICATED AVERAGE CAPITAL COST RATES (2)</u>						
TOTAL DEBT	3.57 %	3.90 %	4.13 %	4.34 %	4.63 %	
PREFERRED STOCK						
<u>CAPITAL STRUCTURE RATIOS</u>						
BASED ON TOTAL PERMANENT CAPITAL:						5 YEAR AVERAGE
LONG-TERM DEBT	58.37 %	57.11 %	59.67 %	61.22 %	54.88 %	58.25 %
PREFERRED STOCK	-	-	-	-	-	-
COMMON EQUITY	<u>41.63</u>	<u>42.89</u>	<u>40.33</u>	<u>38.78</u>	<u>45.12</u>	<u>41.75</u>
TOTAL	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
BASED ON TOTAL CAPITAL:						
TOTAL DEBT, INCLUDING SHORT-TERM	58.37 %	57.11 %	59.67 %	61.22 %	54.88 %	58.25 %
PREFERRED STOCK	-	-	-	-	-	-
COMMON EQUITY	<u>41.63</u>	<u>42.89</u>	<u>40.33</u>	<u>38.78</u>	<u>45.12</u>	<u>41.75</u>
TOTAL	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>DIVIDEND PAYOUT RATIO</u>	74.35 %	53.73 %	- %	104.03 %	58.67 %	58.16 %
<u>RATE OF RETURN ON AVERAGE BOOK COMMON EQUITY</u>	8.36 %	14.75 %	8.04 %	6.60 %	6.42 %	8.83 %
<u>TOTAL DEBT / EBITDA (3)</u>	4.31 x	4.06 x	4.49 x	4.83 x	4.27 x	4.39 x
<u>FUNDS FROM OPERATIONS / TOTAL DEBT (4)</u>	6.01 %	10.52 %	5.26 %	4.29 %	5.21 %	6.26 %
<u>TOTAL DEBT / TOTAL CAPITAL</u>	58.37 %	57.11 %	59.67 %	61.22 %	54.88 %	58.25 %

Notes:

- (1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group, and are based upon financial statements as originally reported in each year.
- (2) Computed by relating actual total debt interest or preferred stock dividends booked to average of beginning and ending total debt or preferred stock reported to be outstanding.
- (3) Total debt as a percentage of EBITDA (Earnings before Interest, Income Taxes, Depreciation and Amortization)
- (4) Funds from operations (sum of net income, depreciation, amortization, net deferred income tax and investment tax credits, less total AFUDC) plus interest charges as a percentage of total debt.

Source of Information: Epcor Water Arizona, Inc.'s Annual Reports to the Arizona Corporation Commission
Company-provided

Proxy Group of Eight Water Companies
CAPITALIZATION AND FINANCIAL STATISTICS (1)
2011 - 2015, Inclusive

Schedule 3
Page 2 of 3

	2015	2014	2013	2012	2011	
	(MILLIONS OF DOLLARS)					
<u>CAPITALIZATION STATISTICS</u>						
<u>AMOUNT OF CAPITAL EMPLOYED</u>						
TOTAL PERMANENT CAPITAL	\$2,269.476	\$2,156.407	\$2,058.747	\$1,998.358	\$1,926.369	
SHORT-TERM DEBT	<u>\$95.003</u>	<u>\$72.459</u>	<u>\$95.589</u>	<u>\$60.594</u>	<u>\$89.698</u>	
TOTAL CAPITAL EMPLOYED	<u>\$2,364.479</u>	<u>\$2,228.866</u>	<u>\$2,154.336</u>	<u>\$2,058.952</u>	<u>\$2,016.067</u>	
<u>INDICATED AVERAGE CAPITAL COST RATES (2)</u>						
TOTAL DEBT	4.89 %	5.01 %	5.19 %	5.36 %	5.32 %	
PREFERRED STOCK	5.42 %	5.30 %	5.51 %	5.53 %	5.53 %	
<u>CAPITAL STRUCTURE RATIOS</u>						<u>5 YEAR AVERAGE</u>
BASED ON TOTAL PERMANENT CAPITAL:						
LONG-TERM DEBT	46.25 %	45.71 %	46.24 %	49.32 %	50.91 %	47.69 %
PREFERRED STOCK	0.12	0.13	0.16	0.18	0.21	0.16
COMMON EQUITY	<u>53.63</u>	<u>54.16</u>	<u>53.60</u>	<u>50.50</u>	<u>48.88</u>	<u>52.15</u>
TOTAL	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
BASED ON TOTAL CAPITAL:						
TOTAL DEBT, INCLUDING SHORT-TERM	47.63 %	47.00 %	47.77 %	50.87 %	52.68 %	49.19 %
PREFERRED STOCK	0.12	0.13	0.15	0.17	0.19	0.15
COMMON EQUITY	<u>52.25</u>	<u>52.87</u>	<u>52.08</u>	<u>48.96</u>	<u>47.13</u>	<u>50.66</u>
TOTAL	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>FINANCIAL STATISTICS</u>						
<u>FINANCIAL RATIOS - MARKET BASED</u>						
EARNINGS / PRICE RATIO	4.72 %	5.44 %	4.84 %	5.47 %	5.19 %	5.13 %
MARKET / AVERAGE BOOK RATIO	224.46	212.84	206.33	187.65	181.94	202.64
DIVIDEND YIELD	2.66	2.76	2.88	3.17	3.40	2.97
DIVIDEND PAYOUT RATIO	56.71	52.46	58.35	60.42	64.84	58.56
<u>RATE OF RETURN ON AVERAGE BOOK COMMON EQUITY</u>	10.40 %	11.38 %	10.08 %	10.12 %	9.30 %	10.26 %
<u>TOTAL DEBT / EBITDA (3)</u>	3.64 X	3.40 X	3.65 X	3.83 X	4.30 X	3.76 X
<u>FUNDS FROM OPERATIONS / TOTAL DEBT (4)</u>	24.07 %	25.95 %	22.85 %	20.86 %	19.19 %	22.58 %
<u>TOTAL DEBT / TOTAL CAPITAL</u>	47.63 %	47.00 %	47.77 %	50.87 %	52.68 %	49.19 %

Notes:

- (1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group, and are based upon financial statements as originally reported in each year.
- (2) Computed by relating actual total debt interest or preferred stock dividends booked to average of beginning and ending total debt or preferred stock reported to be outstanding.
- (3) Total debt relative to EBITDA (Earnings before Interest, Income Taxes, Depreciation and Amortization).
- (4) Funds from operations (sum of net income, depreciation, amortization, net deferred income tax and investment tax credits, less total AFUDC) plus interest charges as a percentage of total debt.

Source of Information: Company Annual Forms 10-K

Capital Structure Based upon Total Permanent Capital for the
Proxy Group of Eight Water Companies
2011 - 2015, Inclusive

	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>5 YEAR AVERAGE</u>
<u>American States Water Co.</u>						
Long-Term Debt	41.15 %	39.15 %	40.30 %	42.49 %	45.46 %	41.71 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	58.85	60.85	59.70	57.51	54.54	58.29
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
<u>American Water Works Company Inc</u>						
Long-Term Debt	53.89 %	52.70 %	52.42 %	54.30 %	55.72 %	53.81 %
Preferred Stock	0.11	0.15	0.17	0.21	0.27	0.18
Common Equity	46.00	47.15	47.41	45.49	44.01	46.01
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
<u>Aqua America Inc</u>						
Long-Term Debt	50.76 %	49.45 %	50.32 %	53.41 %	54.11 %	51.61 %
Preferred Stock	0.00	0.00	0.01	0.01	0.02	0.01
Common Equity	49.24	50.55	49.67	46.58	45.87	48.38
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
<u>California Water Service Group</u>						
Long-Term Debt	44.69 %	40.46 %	42.03 %	50.39 %	52.04 %	45.92 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	55.31	59.54	57.97	49.61	47.96	54.08
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
<u>Connecticut Water Service Inc</u>						
Long-Term Debt	44.54 %	45.91 %	47.34 %	49.04 %	53.04 %	47.97 %
Preferred Stock	0.19	0.20	0.20	0.21	0.30	0.22
Common Equity	55.27	53.90	52.46	50.76	46.66	51.81
Total Capital	100.00 %	100.01 %	100.00 %	100.01 %	100.00 %	100.00 %
<u>Middlesex Water Co.</u>						
Long-Term Debt	40.45 %	41.55 %	41.36 %	43.53 %	43.12 %	41.99 %
Preferred Stock	0.69	0.71	0.88	1.02	1.06	0.87
Common Equity	58.87	57.74	57.75	55.45	55.82	57.13
Total Capital	100.01 %	100.00 %	99.99 %	100.00 %	100.00 %	99.99 %
<u>SIW Corp</u>						
Long-Term Debt	50.03 %	51.66 %	51.09 %	55.39 %	56.63 %	52.96 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	49.97	48.34	48.91	44.61	43.37	47.04
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
<u>York Water Co.</u>						
Long-Term Debt	44.46 %	44.81 %	45.07 %	45.98 %	47.16 %	45.50 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	55.54	55.19	54.93	54.02	52.84	54.50
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
<u>Proxy Group of Eight Water Companies</u>						
Long-Term Debt	46.25 %	45.71 %	46.24 %	49.32 %	50.91 %	47.68 %
Preferred Stock	0.12	0.13	0.16	0.18	0.21	0.16
Common Equity	53.63	54.16	53.60	50.50	48.88	52.16
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %

Source of Information
Annual Forms 10-K

EPCOR Water Arizona, Inc.
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for
Proxy Group of Eight Water Companies

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]					
	Average Dividend Yield (1)	Value Line Projected Five Year Growth in EPS (2)	Reuters Mean Consensus Projected Five Year Growth Rate in EPS	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth in EPS (3)	Adjusted Dividend Yield (4)	Indicated Common Equity Cost Rate (5)				
Proxy Group of Eight Water Companies												
American States Water Co.	2.08	%	6.00	%	3.85	%	4.58	%	2.13	%	6.71	%
American Water Works Company Inc	2.20		7.00		7.62		7.44		2.28		9.72	
Aqua America Inc	2.35		7.50		5.85		6.35		2.42		8.77	
California Water Service Group	2.90		6.50		5.00		5.38		2.98		8.36	
Connecticut Water Service Inc	2.70		4.50		5.00		4.88		2.77		7.65	
Middlesex Water Co.	2.95		5.00		NA		NA		3.01		6.86	
SJW Corp	2.59		1.50		NA		7.75		2.69		10.44	
York Water Co.	2.42		6.50		NA		5.70		2.49		8.19	
									Average		8.34	%
									Median		8.27	%
									Average of Mean and Median		8.31	%

NA= Not Available

Notes:

- (1) Indicated dividend at 02/29/2016 divided by the average closing price of the last 60 trading days ending 02/29/2016 for each company.
- (2) From pages 3 through 10 of this Schedule.
- (3) Average of columns 2 through 5 excluding negative growth rates.
- (4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 6) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for American States Water Co., $2.08\% \times (1 + (1/2 \times 4.58\%)) = 2.13\%$.
- (5) Column 6 + column 7.

Source of Information:

Value Line Investment Survey
www.reuters.com Downloaded on 02/29/2016
www.zacks.com Downloaded on 02/29/2016
www.yahoo.com Downloaded on 02/29/2016

**Demonstration of the Inadequacy of
a DCF Return Rate Related to Book Value
When Market Value is Greater than Book Value**

<u>Line No.</u>	Based on the Proxy Group of Nine Water Companies	
	<u>Column A</u>	<u>Column B</u>
	<u>Market Value</u>	<u>Book Value</u>
1. Per Share	\$ 37.03 (1)	\$ 15.55 (2)
2. DCF Cost Rate (3)	8.34%	8.34%
3. Return in Dollars (4)	\$ 3.089	\$ 1.297
4. Dividends (5)	\$ 0.963	\$ 0.963
5. Growth in Dollars (6)	\$ 2.126	\$ 0.334
6. Return on Market Value (7)	8.34%	3.50%
7. Rate of Growth on Market	5.74%	0.90%

Notes:

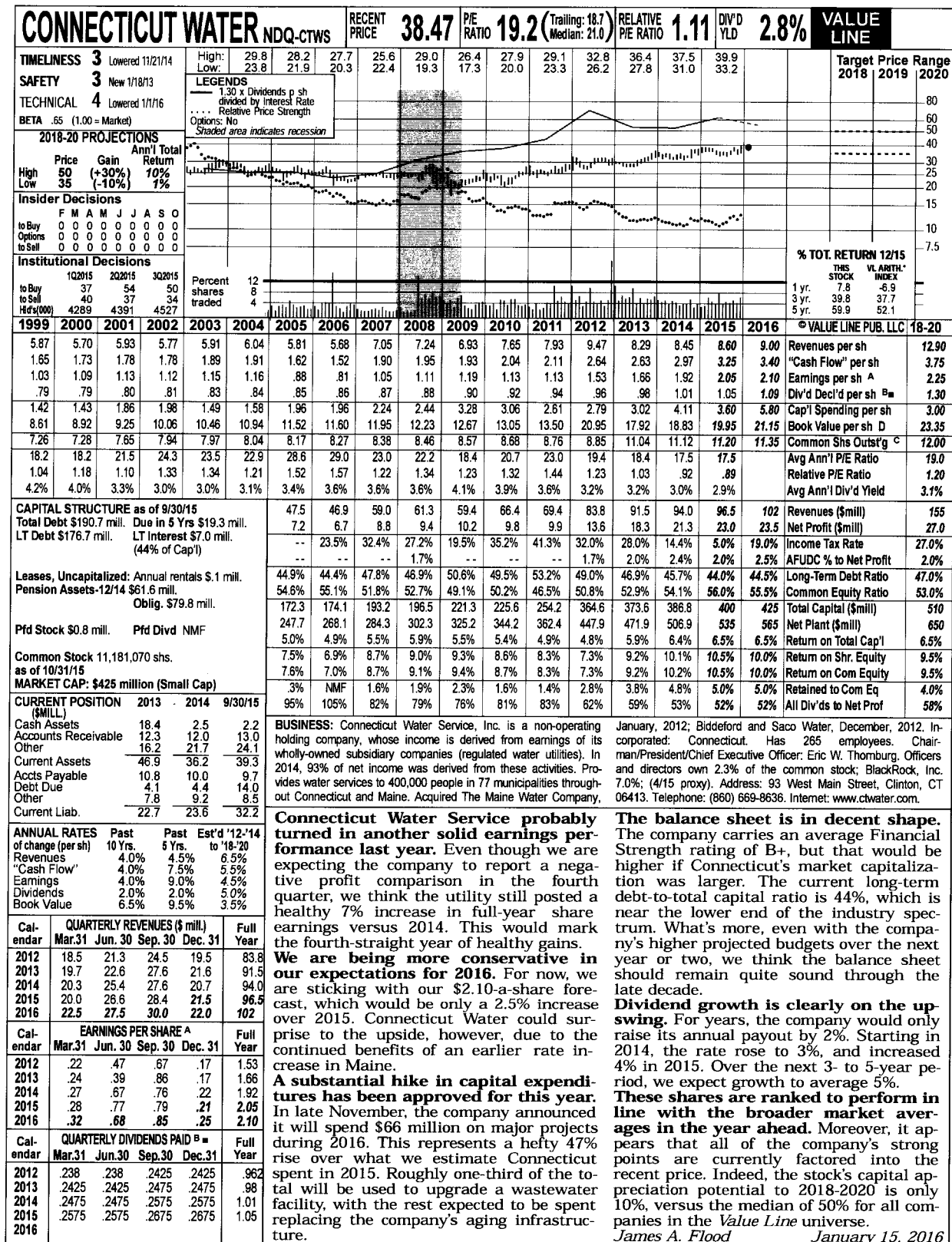
- (1) Average price of the Water Proxy Group as shown on page 2 of Schedule 7.
- (2) Average book value of the Water Proxy Group as shown on page 2 of Schedule 7.
- (3) Average DCF cost rate from page 1 of this Schedule.
- (4) Line 1 x Line 2.
- (5) Dividends are based on a 3.78% adjusted dividend yield which is
- (6) Line 3 - Line 4.
- (7) Line 3 / Line 1.
- (8) Line 7 / Line 1.

(A) Primary earnings. Excludes nonrecurring gains/(losses): '04, 7¢; '05, 13¢; '06, 3¢; '08, (14¢); '10, (23¢) '11, 10¢. Next earnings report due late February. Quarterly earnings may not add due to rounding.		(C) In millions, adjusted for splits.	Company's Financial Strength	A
(B) Dividends historically paid in early March, June, September, and December. ■ Div'd reinvestment plan available.			Stock's Price Stability	90
			Price Growth Persistence	70
			Earnings Predictability	90
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AMERICAN WATER NYSE-AWK										RECENT PRICE	60.15	P/E RATIO	22.4 (Trailing: 23.1 Median: NMF)	RELATIVE P/E RATIO	1.29	DIV'D YLD	2.4%	VALUE LINE	Target Price Range			
TIMELINESS 2 Lowered 7/10/15										High:	23.7	23.0	25.8	32.8	39.4	45.1	56.2	61.2	128			
SAFETY 3 New 7/25/08										Low:	16.5	16.2	19.4	25.2	31.3	37.0	41.1	48.4	96			
TECHNICAL 3 Lowered 11/27/15																						
BETA .70 (1.00 = Market)																						
2018-20 PROJECTIONS																						
Price Gain Ann'l Total																						
High 80 (+35%) 10%																						
Low 50 (-15%) -1%																						
Insider Decisions																						
F M A M J J A S O																						
to Buy 0 0 0 0 0 1 0 0																						
Options 2 5 0 2 0 0 1 0 0																						
to Sell 2 5 0 4 0 0 1 0 0																						
Institutional Decisions																						
1Q2015 2Q2015 3Q2015																						
to Buy 213 247 211																						
to Sell 222 206 210																						
Net(000) 147193 145636 148013																						
Percent shares traded 21																						
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AQUA AMERICA NYSE-WTR				RECENT PRICE	29.65	P/E RATIO	23.2	Trailing: 23.7 Median: 23.0	RELATIVE P/E RATIO	1.34	DIV'D YLD	2.5%	VALUE LINE	Target Price Range																																																																																																																																																			
TIMELINESS	3	Lowered 5/14/13		High: 14.8	23.4	23.8	21.3	17.6	17.2	18.4	19.0	21.5	28.1	28.2	31.1	2020																																																																																																																																																	
SAFETY	2	Raised 4/20/12		Low: 11.3	14.0	16.1	15.1	9.8	12.3	13.2	15.4	16.8	20.6	22.4	24.4	2019																																																																																																																																																	
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<p>BUSINESS: Aqua America, Inc. is the holding company for water and wastewater utilities that serve approximately three million residents in Pennsylvania, Ohio, North Carolina, Illinois, Texas, New Jersey, Florida, Indiana, and five other states. Has 1,617 employees. Acquired AquaSource, 7/03; Consumers Water, 4/99; and others. Water supply revenues '14: residential, 68%; commercial, 17%; industrial & other, 15%. Officers and directors own .8% of the common stock; Vanguard Group, 7.1%; Blackrock, Inc, 6.7%; State Street Capital Corp., 5.7% (3/15 Proxy). Chairman: Nicholas DeBenedictis. CEO: Christopher Franklin, Incorporated: Pennsylvania. Address: 762 West Lancaster Avenue, Bryn Mawr, Pennsylvania 19010. Tel.: 610-525-1400. Internet: www.aquaamerica.com.</p> <p>Shares of Aqua America have been on a roll. Like several other water utility stocks, this equity has turned in an excellent performance since our mid-October report, increasing roughly 11% in value. In contrast, the typical stock in the group rose about 5%, while the S&P 500 gained only 2%, over the same period.</p> <p>Our earnings estimates are unchanged. Last year's fourth-quarter profits should probably be similar to 2014's. For the full year, we expect Aqua's share net to rise a decent 4%. (Comparisons on a year-over-year basis would look better if not for an unusual gain posted in 2014.) In 2016, results should be more impressive as Aqua should benefit from a combination of factors, including synergies derived from many of its acquisitions, rate relief, and relative constructive regulatory treatment. All told, we think a solid 7% rise in earnings per share is possible.</p> <p>Aqua is one of the nation's best-run water utilities. There may be only nine members in this industry, but the company has some compelling attributes. For starters, it is one of only a handful of firms that has a meaningful market capitaliza-</p> <p>tion (\$5.2 billion). Furthermore, despite a large capital budget, the company's finances are solid. In addition, there are thousands of small municipally-owned water districts that can be purchased by larger water companies like Aqua and made more profitable due to the large amount of redundancies prevalent in the industry. Acquisitions are usually small, so the process is ongoing. For example, the company made 16 purchases last year alone. We are not sure how many will eventually be made, but we expect the customer base to be increased by 1.5%-2% annually, via this method.</p> <p>We think this stock has lost some of its appeal. A water utility is attractive in part for its yield and dividend growth prospects. Due to the recent run-up in WTR's price, its yield is now only 10 basis points higher than the Value Line median. So, while Aqua remains a very sound company, we think that the market may be placing too high a premium on its shares. Also, with so many positives factored into the current price, we think the equity may be vulnerable to any bad news.</p> <p><i>James A. Flood</i> January 15, 2016</p>																<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>		<p>A 95</p> <p>B 100</p> <p>C 60</p>			

[illegible]



(A) Diluted earnings. Next earnings report due late February. Quarterly earnings do not add in 2012 due to rounding.
 (B) Dividends historically paid in mid-March.
 (C) In millions, adjusted for split.
 (D) Includes intangibles. In 2014: \$31.7 mil.

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(A) Diluted earnings. May not sum due to rounding. Next earnings report due late February, May, Aug., and November. ■ Div'd reinvestment plan available.
(C) In millions, adjusted for splits.

(B) Dividends historically paid in mid-Feb.

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Company's Financial Strength	B++
Stock's Price Stability	95
Price Growth Persistence	35
Earnings Predictability	80

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<p>(A) Diluted earnings. Excludes nonrecurring losses: '03, \$1.97; '04, \$3.78; '05, \$1.09; '06, \$16.36; '08, \$1.22; '10, \$0.46. GAAP accounting as of 2013. Next earnings report due late February. Quarterly earnings may not add due to rounding.</p>	<p>(B) Dividends historically paid in early March, June, September, and December. ■ Divid rein-</p>	<p>vestment plan available. (C) In millions, dividends for stock splits.</p>	<p>Company's Financial Strength B+ Stock's Price Stability 85 Price Growth Persistence 20 Earnings Predictability 50</p>
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<p>To subscribe call 1-800-VALUeline</p>			

YORK WATER NDQ:YORW										RECENT PRICE	24.84	P/E RATIO	25.6 (Trailing: 25.3 Median: 25.0)	RELATIVE P/E RATIO	1.48	DIV'D YLD	2.5%	VALUE LINE	Target Price Range			
TIMELINESS	2	Raised 12/18/15	High: 14.0	17.9	21.0	18.5	16.5	18.0	18.0	18.1	18.5	22.0	24.3	26.7					Target Price Range	2018	2019	2020
SAFETY	3	Lowered 7/17/15	Low: 11.0	11.7	15.3	15.5	6.2	9.7	12.8	15.8	16.8	17.6	18.8	19.7								
TECHNICAL	3	Raised 1/15/16	LEGENDS																			
BETA	.75	(1.00 = Market)	1.10 x Dividends p sh divided by Interest Rate																			
2018-20 PROJECTIONS																						
Price Gain Ann'l Total																						
High Low 30 20																						
Insider Decisions																						
Institutional Decisions																						
CAPITAL STRUCTURE as of 9/30/15																						
Pension Assets 12/14 \$30.6 mill.																						
Pfd Stock None																						
Common Stock 12,791,600 shs.																						
MARKET CAP: \$325 million (Small Cap)																						
CURRENT POSITION																						
ANNUAL RATES																						
Cal-endar																						
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(A) Diluted earnings. Next earnings report due late February.
(B) Dividends historically paid in mid-January, April, July, and October.

(C) In millions, adjusted for splits.

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Business: The York Water Company is the oldest investor-owned regulated water utility in the United States. It has operated continuously since 1816. As of December 31, 2014, the company's average daily availability was 35.2 million gallons and its service territory had an estimated population of 190,000. Has more than 65,100 customers. Residential customers accounted for 63% of 2014 revenues; commercial and industrial (29%); other (8%). It also provides sewer billing services. Incorporated: PA. York had 106 full-time employees at 12/31/14. President/CEO: Jeffrey R. Hines. Officers/directors own 1.1% of the common stock (4/15 proxy). Address: 130 East Market Street, York, Pennsylvania 17401. Telephone: (717) 845-3601. Internet: www.yorkwater.com.

Shares of York Water have been stellar performers of late. Over the past three months, the price of this stock has surged roughly 13% in value versus the returns of only about 2% posted by the S&P 500 Index.

Fourth-quarter comparisons are likely to be negative. In the December, 2014 period, York's profits were boosted significantly by a large tax adjustment. Absent this factor, we expect the company's share net to reach only \$0.23, well short of the \$0.28 posted in the similar 2014 time frame. On the plus side, for the full year, York should be able to increase earnings per share by 4% against a difficult comparison.

The earnings outlook is relatively bright for this year. We think the company should continue to benefit to some degree from how the IRS values tangible property. The resulting low tax rate, along with about 2% less shares outstanding (due to a stock-repurchase program), and the utility's ability to earn a return on newly spent capital expenditures, should enable York's share net to rise to \$1.00 a share, almost 8% higher than 2015's estimated level.

Over the long pull, we think York's dividends and earnings growth rates will be moderate, but be well-defined. The company doesn't operate in a service area that is experiencing rapid growth. Thus, with population increases projected to be marginal at best, revenue and profit expansion should come from mostly upgrading and replacing its aging water infrastructure. Since the need to replace the existing pipeline is obvious, we don't foresee any major disputes with state regulators. Therefore, any harsh regulatory rulings would make our earnings estimates through 2018-2020 too optimistic.

Our ranking system believes the stock of York still has some gas left in the tank. Despite the equity's recent run, we think York will outperform the broader market averages in the year ahead. Long-term prospects are unattractive, however. We think the price of these shares now reflects almost all of the utility's positive attributes. Indeed, the stock is already trading well within our projected late-decade Target Price Range.

James A. Flood January 15, 2016

Company's Financial Strength	B+
Stock's Price Stability	90
Price Growth Persistence	50
Earnings Predictability	95

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EPCOR Water Arizona, Inc.
Summary of Risk Premium Models for
of the Proxy Group of Eight Water Companies

	<u>Proxy Group of Eight Water Companies</u>
Predictive Risk Premium Model TM (PRPM TM) (1)	11.57 %
Risk Premium Using an Adjusted Total Market Approach (2)	<u>9.93 %</u>
Average	<u><u>10.75 %</u></u>

Notes:

(1) From page 2 of this Schedule.

(2) From page 3 of this Schedule.

EPCOR Water Arizona, Inc.
Indicated ROE
Derived by the Predictive Risk Premium Model (1)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Eight Water Companies	LT Average Predicted Variance	Spot Predicted Variance	Average Predicted Variance	GARCH Coefficient	Predicted Risk Premium (2)	Risk-Free Rate (3)	Indicated ROE (4)
American States Water Co.	0.39%	0.36%	0.37%	1.702209	7.83%	3.53%	11.36%
American Water Works Company Inc	NM	NM	NM	NM	NM	NM	NM
Aqua America Inc	0.46%	0.29%	0.37%	2.281160	10.61%	3.53%	14.14%
California Water Service Group	0.31%	0.27%	0.29%	1.851526	6.64%	3.53%	10.17%
Connecticut Water Service Inc	0.28%	0.44%	0.36%	1.841655	8.25%	3.53%	11.78%
Middlesex Water Co.	0.27%	0.27%	0.27%	2.122279	7.10%	3.53%	10.63%
SJW Corp	0.42%	0.37%	0.39%	1.422660	6.87%	3.53%	10.40%
York Water Co.	0.44%	0.32%	0.38%	2.191488	10.46%	3.53%	13.99%
						Average	11.78%
						Median	11.36%
					Average of Mean and Median		11.57%

Notes:

- (1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums starting with the first available trading month on a major exchange (e.g. NYSE, NASDAQ) through February 2016.
- (2) $(1 + (\text{Column [3]} * \text{Column [4]}^{12}) - 1)$
- (3) From note 2 of Schedule 6.
- (4) Column [5] + Column [6].

EPCOR Water Arizona, Inc.
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

<u>Line No.</u>		<u>Proxy Group of Eight Water Companies</u>
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	4.70 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A Rated Public Utility Bonds	<u>0.26 (2)</u>
3.	Adjusted Prospective Yield on A Rated Public Utility Bonds	4.96 %
4.	Adjustment to Reflect Bond Rating Difference of Proxy Group	<u>0.20 (3)</u>
5.	Adjusted Prospective Bond Yield	5.16 %
6.	Equity Risk Premium (4)	<u>4.77</u>
7.	Risk Premium Derived Common Equity Cost Rate	<u><u>9.93 %</u></u>

- Notes:
- (1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 9-10 of this Schedule).
 - (2) The average yield spread of A rated public utility bonds over Aaa rated corporate bonds of 0.26% from page 4 of this Schedule.
 - (3) Adjustment to reflect the A2 / A3 Moody's LT issuer rating of the proxy group of eight water companies as shown on page 5 of this Schedule. The 0.20% upward adjustment is derived by taking 1/6 of the spread between A2 and A3 Public Utility Bonds ($1/6 * 1.20\% = 0.20\%$) as derived from page 4 of this Schedule.
 - (4) From page 7 of this Schedule.

EPCOR Water Arizona, Inc.
Interest Rates and Bond Spreads for
Moody's Corporate and Public Utility Bonds

Selected Bond Yields

	[1]	[2]	[3]
	<u>Aaa Rated Corporate Bond</u>	<u>A Rated Public Utility Bond</u>	<u>Baa Rated Public Utility Bond</u>
Feb-2016	3.96 %	4.11 %	5.28 %
Jan-2016	4.00	4.27	5.49
Dec-2015	<u>3.97</u>	<u>4.35</u>	<u>5.55</u>
Average	<u>3.98 %</u>	<u>4.24 %</u>	<u>5.44 %</u>

Selected Bond Spreads

A Rated Public Utility Bonds Over Aaa Rated Corporate Bonds:

0.26 % (1)

Baa Rated Public Utility Bonds Over A Rated Public Utility Bonds:

1.20 % (2)

Notes:

(1) Column [2] - Column [1].

(2) Column [3] - Column [2].

Source of Information:

Bloomberg Professional Services

EPCOR Water Arizona, Inc.
Comparison of Long-Term Issuer Ratings for the
Proxy Group of Eight Water Companies

Schedule 5
Page 5 of 11

	Moody's		Standard & Poor's	
	Long-Term Issuer Rating		Long-Term Issuer Rating	
	February 2016		February 2016	
Proxy Group of Eight Water Companies	Long-Term Issuer Rating	Numerical Weighting(1)	Long-Term Issuer Rating	Numerical Weighting(1)
American States Water Co. (2)	A2	6.0	A+	5.0
American Water Works Company Inc. (3)	A3	7.0	A	6.0
Aqua America Inc (4)	NR	--	A+	5.0
California Water Service Group (4)	NR	--	A+	5.0
Connecticut Water Service Inc (5)	NR	--	A	6.0
Middlesex Water Co.	NR	--	A	6.0
SJW Corp (6)	NR	--	A	6.0
York Water Co.	NR	--	A-	7.0
Average	A2/A3	6.5	A	5.8

Notes:

- (1) From page 6 of this Schedule.
- (2) Ratings that of Golden State Water Company.
- (3) Ratings that of New Jersey and Pennsylvania American Water Companies.
- (4) Ratings that of California Water Service Company.
- (5) Ratings that of Connecticut Water Company.
- (6) Ratings that of San Jose Water Company.

Source Information: Moody's Investors Service
Standard & Poor's Global Utilities Rating Service

Numerical Assignment for
Moody's and Standard & Poor's Bond Ratings

Schedule 5
Page 6 of 11

Moody's Bond Rating	Numerical Bond Weighting	Standard & Poor's Bond Rating
Aaa	1	AAA
Aa1	2	AA+
Aa2	3	AA
Aa3	4	AA-
A1	5	A+
A2	6	A
A3	7	A-
Baa1	8	BBB+
Baa2	9	BBB
Baa3	10	BBB-
Ba1	11	BB+
Ba2	12	BB
Ba3	13	BB-
B1	14	B+
B2	15	B
B3	16	B-

EPCOR Water Arizona, Inc.
Judgment of Equity Risk Premium for
the Proxy Group of Eight Water Companies

<u>Line No.</u>		<u>Proxy Group of Eight Water Companies</u>
1.	Calculated equity risk premium based on the total market using the beta approach (1)	5.50 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	<u>4.03</u>
3.	Average equity risk premium	<u><u>4.77 %</u></u>

Notes: (1) From page 8 of this Schedule.
(2) From page 11 of this Schedule.

EPCOR Water Arizona, Inc.
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for
the Proxy Group of Eight Water Companies

<u>Line No.</u>	<u>Equity Risk Premium Measure</u>	<u>Proxy Group of Eight Water Companies</u>
1.	Ibbotson Equity Risk Premium (1)	5.61 %
2.	Ibbotson Equity Risk Premium based on PRPM™ (2)	7.20
3.	Equity Risk Premium Based on <u>Value Line</u> Summary and Index (3)	9.33
4.	Equity Risk Premium Based on S&P 500 Companies(4)	<u>8.81</u>
5.	Conclusion of Equity Risk Premium (5)	7.74 %
6.	Adjusted Beta (6)	<u>0.71</u>
7.	Forecasted Equity Risk Premium	<u>5.50 %</u>

- Notes:
- (1) Based on the arithmetic mean historical monthly returns on large company common stocks from Ibbotson® S&P® 2015 Market Report minus the arithmetic mean monthly yield of Moody's Aaa and Aa corporate bonds from 1928-2014. $(11.79\% - 6.18\% = 5.61\%)$.
 - (2) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The Ibbotson equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between Ibbotson large company common stock monthly returns minus the average Aaa and Aa corporate monthly bond yields, from January 1928 through January 2016.
 - (3) The equity risk premium based on the Value Line Summary and Index is derived from taking the projected 3-5 year total annual market return of 14.03% (described fully in note 1 of Schedule 5 and subtracting the average consensus forecast of Aaa corporate bonds of 4.70% (Shown on page 3 of this Schedule). $(14.03\% - 4.70\% = 9.33\%)$.
 - (4) Using data from the Bloomberg Professional Service for the S&P 500, an expected total return of 13.51% was derived based upon expected dividend yields and long-term growth estimates as a proxy for capital appreciation.
Subtracting the average consensus forecast of Aaa corporate bonds of 4.70% results in an expected equity risk premium of 8.81%. $(13.51\% - 4.70\% = 8.81\%)$.
 - (5) Average of lines 1 through 4.
 - (6) Average of mean and median beta from Schedule 6.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - Ibbotson® S&P® 2015 Market Report,
Morningstar, Inc., 2015 Chicago, IL.
Industrial Manual and Mergent Bond Record Monthly Update.
Value Line Summary and Index
Blue Chip Financial Forecasts, March 1, 2016 and December 1, 2015
Bloomberg Professional Services

Consensus Forecasts Of U.S. Interest Rates And Key Assumptions¹Schedule 5
Page 9 of 11

Interest Rates	History				Average For Month---				Latest Qtr
	-----Average For Week Ending-----				Jan.	Dec.	Nov.	4Q2015	
	Feb. 26	Feb. 19	Feb. 12	Feb. 5					
Federal Funds Rate	0.38	0.38	0.38	0.34	0.34	0.16	0.12	0.16	
Prime Rate	3.50	3.50	3.50	3.50	3.50	3.29	3.25	3.29	
LIBOR, 3-mo.	0.62	0.62	0.62	0.62	0.62	0.41	0.37	0.41	
Commercial Paper, 1-mo.	0.36	0.35	0.35	0.35	0.34	0.17	0.11	0.17	
Treasury bill, 3-mo.	0.32	0.30	0.30	0.32	0.26	0.13	0.13	0.13	
Treasury bill, 6-mo.	0.46	0.44	0.41	0.46	0.43	0.31	0.33	0.31	
Treasury bill, 1 yr.	0.54	0.53	0.51	0.52	0.54	0.25	0.48	0.46	
Treasury note, 2 yr.	0.75	0.74	0.68	0.74	0.90	0.83	0.88	0.83	
Treasury note, 5 yr.	1.23	1.24	1.15	1.29	1.52	1.59	1.67	1.59	
Treasury note, 10 yr.	1.75	1.78	1.71	1.89	2.09	2.19	2.26	2.19	
Treasury note, 30 yr.	2.61	2.64	2.55	2.70	2.86	2.96	3.03	2.96	
Corporate Aaa bond	3.96	4.01	3.92	4.03	4.00	3.99	4.06	3.99	
Corporate Baa bond	5.33	5.37	5.29	5.40	5.45	5.42	5.46	5.42	
State & Local bonds	3.27	3.27	3.27	3.30	3.41	3.64	3.68	3.64	
Home mortgage rate	3.65	3.65	3.65	3.72	3.87	3.90	3.94	3.90	

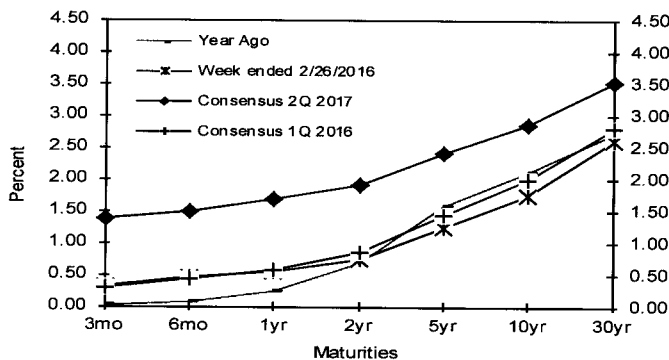
Consensus Forecasts-Quarterly Avg.											
1Q	2Q	3Q	4Q	1Q	2Q						
2016	2016	2016	2016	2017	2017						
0.4	0.5	0.7	0.9	1.2	1.4						
3.5	3.6	3.8	4.0	4.2	4.5						
0.6	0.7	1.0	1.1	1.4	1.7						
0.4	0.5	0.8	1.0	1.3	1.5						
0.3	0.4	0.7	0.9	1.1	1.4						
0.4	0.6	0.8	1.0	1.2	1.5						
0.6	0.7	1.0	1.2	1.4	1.7						
0.8	1.0	1.2	1.4	1.7	1.9						
1.4	1.6	1.8	2.0	2.2	2.4						
2.0	2.1	2.3	2.5	2.7	2.8						
2.8	2.9	3.1	3.2	3.4	3.5						
4.0	4.1	4.3	4.4	4.6	4.8						
5.3	5.4	5.5	5.6	5.7	5.9						
3.4	3.5	3.8	3.9	4.0	4.2						
3.8	3.9	4.1	4.3	4.5	4.7						

Key Assumptions	History				Average For Month---				Latest Qtr
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
	2014	2014	2014	2014	2015	2015	2015	2015	
Major Currency Index	77.1	76.6	77.8	82.6	89.4	89.9	91.8	93.1	
Real GDP	-0.9	4.6	4.3	2.1	0.6	3.9	2.0	1.0	
GDP Price Index	1.5	2.2	1.6	0.1	0.1	2.1	1.3	0.9	
Consumer Price Index	2.1	2.4	1.2	-0.9	-3.1	3.0	1.6	0.2	

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data for interest rates except LIBOR is from Federal Reserve Release (FRSR) H.15. LIBOR quotes available from *The Wall Street Journal*. Interest rate definitions are same as those in FRSR H.15. Treasury yields are reported on a constant maturity basis. Historical data for Fed's Major Currency Index is from FRSR H.10 and G.5. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS).

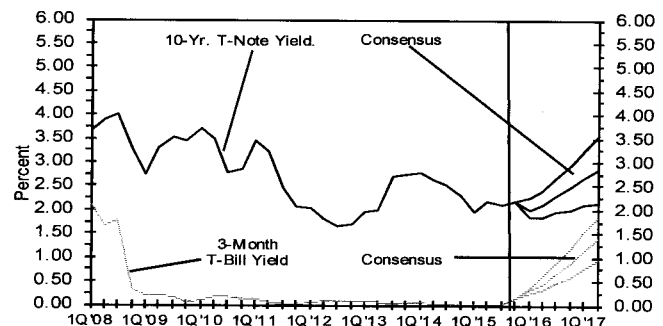
U.S. Treasury Yield Curve

Week ended February 26, 2016 and Year Ago vs.
1Q 2016 and 2Q 2017 Consensus Forecasts



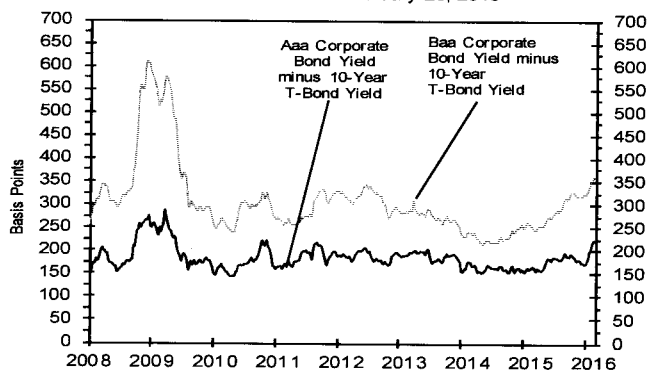
U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield

(Quarterly Average) Forecast



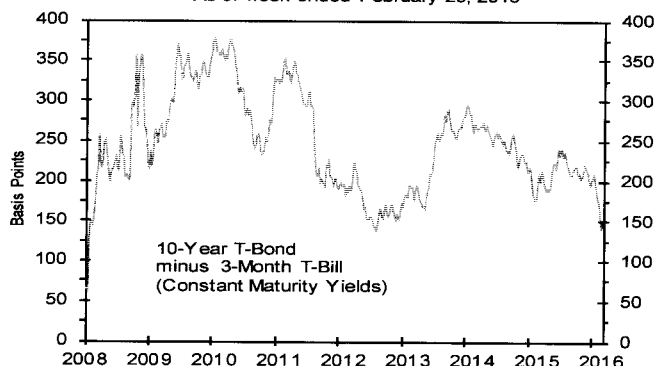
Corporate Bond Spreads

As of week ended February 26, 2016



U.S. Treasury Yield Curve

As of week ended February 26, 2016



Long-Range Estimates:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2017 through 2021 and averages for the five-year periods 2017-2021 and 2022-2026. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

Interest Rates		Average For The Year					Five-Year Averages	
		2017	2018	2019	2020	2021	2017-2021	2022-2026
1. Federal Funds Rate	CONSENSUS	2.0	2.8	3.2	3.3	3.4	2.9	3.3
	Top 10 Average	2.7	3.6	4.0	4.0	4.0	3.7	3.8
	Bottom 10 Average	1.4	2.1	2.3	2.4	2.7	2.2	2.7
2. Prime Rate	CONSENSUS	5.0	5.8	6.2	6.4	6.4	6.0	6.3
	Top 10 Average	5.7	6.5	7.0	7.1	7.0	6.7	6.8
	Bottom 10 Average	4.4	5.2	5.5	5.7	5.8	5.3	5.7
3. LIBOR, 3-Mo.	CONSENSUS	2.3	3.1	3.3	3.4	3.6	3.1	3.5
	Top 10 Average	2.8	3.7	4.0	4.2	4.1	3.8	4.0
	Bottom 10 Average	1.8	2.4	2.6	2.7	3.0	2.5	3.0
4. Commercial Paper, 1-Mo.	CONSENSUS	2.2	3.0	3.4	3.5	3.4	3.1	3.4
	Top 10 Average	2.6	3.5	3.9	4.1	4.0	3.6	3.8
	Bottom 10 Average	1.7	2.4	2.9	2.9	2.9	2.6	2.9
5. Treasury Bill Yield, 3-Mo.	CONSENSUS	2.0	2.8	3.2	3.3	3.3	2.9	3.2
	Top 10 Average	2.8	3.5	3.9	4.0	3.9	3.6	3.7
	Bottom 10 Average	1.4	2.1	2.5	2.7	2.7	2.3	2.6
6. Treasury Bill Yield, 6-Mo.	CONSENSUS	2.1	2.9	3.3	3.4	3.4	3.0	3.3
	Top 10 Average	3.0	3.6	4.0	4.1	4.0	3.7	3.8
	Bottom 10 Average	1.5	2.2	2.6	2.8	2.8	2.4	2.7
7. Treasury Bill Yield, 1-Yr.	CONSENSUS	2.3	3.1	3.4	3.5	3.5	3.2	3.4
	Top 10 Average	3.2	3.8	4.1	4.2	4.2	3.9	4.0
	Bottom 10 Average	1.6	2.3	2.7	2.9	2.9	2.5	2.8
8. Treasury Note Yield, 2-Yr.	CONSENSUS	2.5	3.2	3.5	3.6	3.7	3.3	3.7
	Top 10 Average	3.4	4.0	4.4	4.4	4.4	4.1	4.3
	Bottom 10 Average	1.8	2.4	2.6	2.7	3.0	2.5	3.0
10. Treasury Note Yield, 5-Yr.	CONSENSUS	3.0	3.6	3.8	3.9	4.0	3.6	4.0
	Top 10 Average	3.8	4.4	4.7	4.8	4.8	4.5	4.7
	Bottom 10 Average	2.3	2.7	2.8	2.9	3.2	2.8	3.3
11. Treasury Note Yield, 10-Yr.	CONSENSUS	3.4	3.8	4.1	4.2	4.3	4.0	4.3
	Top 10 Average	4.2	4.7	5.0	5.2	5.2	4.9	5.1
	Bottom 10 Average	2.8	2.9	3.0	3.2	3.5	3.1	3.5
12. Treasury Bond Yield, 30-Yr.	CONSENSUS	4.0	4.4	4.6	4.8	4.9	4.5	4.8
	Top 10 Average	4.9	5.3	5.7	5.9	5.9	5.5	5.7
	Bottom 10 Average	3.3	3.6	3.5	3.7	3.9	3.6	3.9
13. Corporate Aaa Bond Yield	CONSENSUS	5.1	5.5	5.7	5.8	5.8	5.6	5.8
	Top 10 Average	5.7	6.2	6.5	6.6	6.6	6.3	6.5
	Bottom 10 Average	4.5	4.9	5.0	5.0	4.9	4.9	5.2
13. Corporate Baa Bond Yield	CONSENSUS	6.0	6.5	6.7	6.8	6.7	6.5	6.8
	Top 10 Average	6.8	7.2	7.6	7.7	7.6	7.4	7.5
	Bottom 10 Average	5.2	5.7	5.9	6.0	5.8	5.7	6.0
14. State & Local Bonds Yield	CONSENSUS	4.5	4.9	5.0	5.1	5.1	4.9	5.1
	Top 10 Average	5.0	5.5	5.7	5.8	5.8	5.6	5.8
	Bottom 10 Average	4.0	4.3	4.3	4.4	4.4	4.3	4.4
15. Home Mortgage Rate	CONSENSUS	5.1	5.6	5.8	5.9	6.0	5.7	6.0
	Top 10 Average	5.8	6.3	6.7	6.8	6.8	6.5	6.7
	Bottom 10 Average	4.4	4.8	4.9	5.0	5.1	4.9	5.2
A. FRB - Major Currency Index	CONSENSUS	92.8	91.7	91.2	90.8	91.1	91.5	90.1
	Top 10 Average	96.9	96.6	96.4	96.4	96.4	96.5	96.0
	Bottom 10 Average	88.4	86.6	85.7	85.1	85.7	86.3	84.2
		Year-Over-Year, % Change					Five-Year Averages	
		2017	2018	2019	2020	2021	2017-2021	2022-2026
B. Real GDP	CONSENSUS	2.5	2.4	2.2	2.2	2.3	2.3	2.2
	Top 10 Average	2.9	2.8	2.6	2.6	2.6	2.7	2.5
	Bottom 10 Average	2.2	1.8	1.8	1.9	1.9	1.9	2.0
C. GDP Chained Price Index	CONSENSUS	2.1	2.1	2.1	2.1	2.1	2.1	2.0
	Top 10 Average	2.3	2.5	2.4	2.3	2.2	2.3	2.2
	Bottom 10 Average	1.8	1.8	1.9	1.9	1.9	1.9	1.9
D. Consumer Price Index	CONSENSUS	2.3	2.4	2.3	2.3	2.3	2.3	2.2
	Top 10 Average	2.8	2.8	2.7	2.6	2.5	2.7	2.5
	Bottom 10 Average	2.0	2.0	2.0	2.0	2.1	2.0	2.0

EPCOR Water Arizona, Inc.
Derivation of Mean Equity Risk Premium Based on a Study
Using Holding Period Returns of Public Utilities

<u>Line No.</u>		<u>Over A Rated Moody's Public Utility Bonds (1)</u>
1.	Arithmetic Mean Holding Period Returns on the Standard & Poor's Utility Index 1928-2015 (2):	10.49 %
2.	Arithmetic Mean Yield on Moody's A Rated Public Utility Yields 1928-2015	<u>(6.64)</u>
3.	Historical Equity Risk Premium	3.85 %
4.	Forecasted Equity Risk Premium Based on PRPM™ (3)	3.99
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (4)	<u>4.26</u>
6.	Average of Historical and PRPM™ Equity Risk Premium	<u><u>4.03 %</u></u>

- Notes: (1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2015.
- (2) Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.
- (3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A rated public utility bonds from January 1928 - February 2016.
- (4) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 9.22% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation.

Subtracting the expected A rated public utility bond yield of 4.96%, calculated on line 3 of page 3 of this Schedule results in an equity risk premium of 4.26%.
(9.22% - 4.96% = 4.26%)

EPCOR Water Arizona, Inc.
Derivation of the Indicated Cost of Common Equity
Using the Capital Asset Pricing Model ("CAPM")

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Eight Water Companies	Value Line Adjusted Beta	Bloomberg Adjusted Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
American States Water Co.	0.70	0.68	0.69	8.86 %	3.53 %	9.64 %	10.33 %	9.99 %
American Water Works Company Inc	0.70	0.51	0.61	8.86	3.53	8.93	9.80	9.37
Aqua America Inc	0.75	0.61	0.68	8.86	3.53	9.55	10.26	9.91
California Water Service Group	0.75	0.69	0.72	8.86	3.53	9.91	10.53	10.22
Connecticut Water Service Inc	0.65	0.64	0.65	8.86	3.53	9.29	10.06	9.68
Middlesex Water Co.	0.70	0.73	0.72	8.86	3.53	9.91	10.53	10.22
SIW Corp	0.75	0.82	0.79	8.86	3.53	10.53	10.99	10.76
York Water Co.	0.75	0.77	0.76	8.86	3.53	10.26	10.80	10.53
Average			0.70			9.75 %	10.41 %	10.09 %
Median			0.71			9.78 %	10.43 %	10.11 %
Average of Mean and Median			0.71			9.77	10.42	10.10 %

Please see page 2 of this Schedule for notes.

EPCOR Water Arizona, Inc.
Derivation of the Indicated Cost of Common Equity
Using the Capital Asset Pricing Model ("CAPM")
Notes Supporting Calculations

Schedule 6
Page 2 of 2

- (1) The market risk premium (MRP) is an average of four different measures. The first measure of the MRP derives the total return on the market by adding the thirteen-week average forecasted 3-5 year capital appreciation to the thirteen-week average expected dividend yield from Value Line Summary and Index. The projected risk-free rate (developed in Note 2) is then subtracted from the total return to arrive at the projected MRP. The second measure of MRP is based on the arithmetic mean of historical monthly return data of large company stocks less the income return on long-term government bonds from 1926-2014 as published by Morningstar, Inc. The third measure applies the PRPM to the Ibbotson historical data to derive a projected MRP. The fourth measure uses data from Bloomberg Professional Services to derive a total projected return on the S&P 500 by using expected dividend yields and long-term growth estimates as a proxy for capital appreciation. The projected risk-free rate is then subtracted from the projected total return on the S&P500 to arrive at the projected MRP. The four measures of MRP are illustrated below:

Measure 1: Value Line Projected MRP (Thirteen weeks ending March 4, 2016)

Total projected return on the market 3 -5 years hence:	14.03 %
Projected Risk-Free Rate (described in Note 2):	<u>3.53</u>
MRP based on Value Line Summary & Index:	<u>10.50 %</u>

Measure 2: Ibbotson Arithmetic Mean MRP (1926-2014)

Arithmetic Mean Monthly Returns for Large Stocks 1926-2014:	12.07 %
Arithmetic Mean Income Returns on Long-Term Government Bonds:	<u>5.23</u>
MRP based on Ibbotson Historical Data:	<u>6.84 %</u>

Measure 3: Application of the PRPM to Ibbotson Historical Data:
(January 1926 - January 2016)

8.12 %

Measure 4: Bloomberg Projected MRP

Total return on the Market based on the S&P 500:	13.51 %
Projected Risk-Free Rate (described in Note 2):	<u>3.53</u>
MRP based on Bloomberg data	<u>9.98 %</u>

Average MRP: 8.86 %

- (2) For reasons explained in the direct testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See pages 9 and 10 of Schedule 5). The projection of the risk-free rate is illustrated below:

First Quarter 2016	2.80 %
Second Quarter 2016	2.90
Third Quarter 2016	3.10
Fourth Quarter 2016	3.20
First Quarter 2017	3.40
Second Quarter 2017	3.50
2017-2021	4.50
2022-2026	<u>4.80</u>
	<u>3.53 %</u>

- (3) Average of Column 6 and Column 7.

Sources of Information:

Value Line Summary and Index
Blue Chip Financial Forecasts, March 1, 2016 and December 1, 2015
Stocks, Bonds, Bills, and Inflation - Ibbotson® SBBi® 2015 Market Report, Morningstar, Inc., 2015 Chicago, IL.
Bloomberg Professional Services

EPCOR Water Arizona, Inc.
Derivation of Investment Risk Adjustment Based upon
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.	[1] Market Capitalization on February 29, 2016 (1) (millions)	[2] Applicable Decile of the NYSE/AMEX/NASDAQ (2)	[3] Applicable Size Premium (3)	[4] Spread from Applicable Size Premium (4)
1. <u>EPCOR Water Arizona, Inc.</u>	\$ 446,020	9	2.69%	
2. <u>Proxy Group of Eight Water Companies</u>	\$ 2,712,621	5 - 6	1.67%	1.02%

(A) Decile	(B) Number of Companies (millions)	(C) Recent Total Market Capitalization (millions)	(D) Recent Average Market Capitalization (millions)	(E) Premium (Return in Excess of CAPM) (2)
1	191	\$14,808,784.27	\$77,532.90	-0.36%
2	208	\$3,247,447.91	\$15,612.73	0.63%
3	198	\$1,579,432.90	\$7,976.93	0.91%
4	222	\$1,042,428.21	\$4,695.62	1.06%
5	222	\$694,147.09	\$3,126.79	1.60%
6	272	\$585,657.12	\$2,153.15	1.74%
7	323	\$449,325.23	\$1,391.10	1.71%
8	421	\$333,731.80	\$792.71	2.15%
9	413	\$173,673.21	\$420.52	2.69%
10	951	\$135,401.29	\$142.38	5.78%

*From Duff & Phelps 2015 Valuation Handbook Guide to Cost of Capital

Notes:

- (1) From page 2 of this Schedule.
- (2) Gleaned from Column (D) on the bottom of this page. The appropriate decile (Column (A)) corresponds to the market capitalization of the proxy group, which is found in Column 1.
- (3) Corresponding risk premium to the decile is provided on Column (E) on the bottom of this page.
- (4) Line No. 1a Column 3 - Line No. 2 Column 3 and Line No. 1b, Column 3 - Line No. 3 of Column 3 etc. For example, the 1.02% in Column 4, Line No. 2 is derived as follows 1.02% = 2.69% - 1.67%.

EPCOR Water Arizona, Inc.
Market Capitalization of EPCOR Water Arizona, Inc. and
Proxy Group of Eight Water Companies

	[1]	[2]	[3]	[4]	[5]	[6]
Company	Common Stock Shares Outstanding at Fiscal Year End 2015 (millions)	Book Value per Share at Fiscal Year End 2015 (1)	Total Common Equity at Fiscal Year End 2015 (millions)	Closing Stock Market Price on February 29, 2016	Market-to- Book Ratio on February 29, 2016 (2)	Market Capitalization on February 29, 2016 (3) (millions)
EPCOR Water Arizona, Inc.	NA (4)	NA	177,910 (4)	NA		
Based upon the Proxy Group of Eight Water Companies					250.7 (5)	\$ 446,020 (6)
Proxy Group of Eight Water Companies						
American States Water Co.	NYSE	\$ 36,502	\$ 12,765	\$ 42,410	332.2 %	\$ 1,548,046
American Water Works Company Inc	NYSE	178,282	\$ 28,320	\$ 64,820	228.9 %	\$ 11,556,263
Aqua America Inc	NYSE	176,544	\$ 9,776	\$ 30,570	312.7 %	\$ 5,396,953
California Water Service Group	NYSE	47,875	\$ 13,413	\$ 24,720	184.3 %	\$ 1,183,470
Connecticut Water Service Inc	NASDAQ	11,193	\$ 20,011	\$ 41,690	208.3 %	\$ 466,631
Middlesex Water Co.	NASDAQ	16,225	\$ 12,739	\$ 28,020	220.0 %	\$ 454,625
SIW Corp	NYSE	20,382	\$ 18,830	\$ 36,260	192.6 %	\$ 739,049
York Water Co.	NASDAQ	12,812	\$ 8,513	\$ 27,780	326.3 %	\$ 355,928
Average		62,477	\$ 15,546	\$ 37,034	250.7 %	\$ 2,712,621

NA= Not Available

- Notes: (1) Column 3 / Column 1.
(2) Column 4 / Column 2.
(3) Column 5 * Column 3.
(4) Company-Provided.
(5) The market-to-book ratio of EPCOR Water Arizona, Inc. on February 29, 2016 is assumed to be equal to the market-to-book ratio of Proxy Group of Eight Water Companies on February 29, 2016.

9+

(6) EPCOR Water Arizona, Inc.'s common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio at February 29, 2016 of Proxy Group of Eight Water Companies, 250.7%, and EPCOR Water Arizona, Inc.'s market capitalization on February 29, 2016 would therefore have been \$446,020 million.

EPCOR Water Arizona, Inc.
Calculation of Fair Value Increment Rate of Return ("FVROR")

Schedule 8

<u>Line No.</u>	<u>Inflation</u>	
1.	Historical Inflation 1987 -2015 (1)	<u>2.67%</u>
	<u>Projected Consumer Price Index (2)</u>	
	2016	2.43%
	2026	<u>2.94%</u>
2.	Compound Annual Growth Rate	1.95%
	<u>Projected Consumer Price Index (3)</u>	
	2017 - 2021	2.30%
	2022 - 2026	<u>2.20%</u>
3.	Mean	2.25%
4.	Mean Projected Inflation Forecast	<u>2.10%</u>
5.	Mean Inflation Rate	<u>2.39%</u>
	<u>Risk-Free Rate</u>	
6.	<u>Historical 30-Year Treasury Note</u>	<u>5.65%</u>
7.	<u>Projected Nominal U.S. Treasury Note Yield 1987 - 2015 (3)</u>	
	2017 - 2021	4.50%
	2022 - 2026	<u>4.80%</u>
		4.65%
8.	<u>Mean 30-Year Treasury Note Yield</u>	<u>5.15%</u>
9.	<u>Mean Real Risk-Free Rate</u>	<u>2.70% (4)</u>
10.	<u>50.0% of Real Risk-Free Rate</u>	<u>1.35%</u>

- Notes: (1) From Tables A-15 (inflation) and A-7 (long-term U.S. government bonds) of Morningstarr SBBI Appendix A Tables, Morningstat Stocks, Bonds, Bills, and Inflation | (2) From Table 20. Macroeconomic Indicators. <http://www.eia.gov/forecasts/aeo/>. (3) From page 10 of Schedule 5. (4) $2.70\% = ((1+5.15\%)/(1+2.39\%)-1$

Guastella Direct

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, Chairman
BOB STUMP
TOM FORESE
BOB BURNS
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF
EPCOR WATER ARIZONA INC. FOR A
DETERMINATION OF THE CURRENT FAIR
VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR
INCREASES/DECREASES IN ITS RATES AND
CHARGES BASED THEREON FOR UTILITY
SERVICE BY ITS AGUA FRIA, ANTHEM,
MOHAVE, SUN CITY, AND SUN CITY WEST
WASTEWATER DISTRICTS AND FOR
CONSIDERATION OF CONSOLIDATION AND
DE-CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-16-0145

**DIRECT TESTIMONY
OF
JOHN F. GUASTELLA
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

**DIRECT TESTIMONY
OF
JOHN F. GUASTELLA
ON BEHALF OF
EPCOR WATER ARIZONA INC.
APRIL 29, 2016**

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1 **EXECUTIVE SUMMARY**

2 John F. Guastella testifies as follows:

3 In connection with the rate application by EPCOR Water Arizona Inc. (“EWAZ” or
4 “Company”) for its Agua Fria, Anthem, Mohave, Sun City, Sun City West wastewater systems, I
5 am recommending the use of similar average service lives and resultant depreciation rates, by
6 account, for all wastewater systems, as reflected in Exhibit JFG-1. EWAZ now uses
7 depreciation rates that reflect those general guidelines by the Arizona Corporation Commission
8 (“ACC” or “Commission”) Staff. On the basis of a previous comparative depreciation study I
9 performed on behalf of the Company’s predecessor, Arizona American Water Company, and a
10 review of the environmental impact on certain assets of climate conditions unique to Arizona, I
11 found that the ACC Staff’s recommended depreciation rates are reasonable, with the exception of
12 two general accounts that require revision based on EWAZ’s experience operating and
13 maintaining their systems. Specifically, for reasons I will discuss in detail, I recommend that the
14 depreciation rate for the Collection Sewers - Gravity account be established at 2.5% instead of
15 2.0% and the depreciation rate for the various Treatment & Disposal Equipment accounts be
16 established at 6.67% instead of 5.0%.

17 With respect to the “Tolleson Agreement” under which the City of Tolleson treats the
18 wastewater of EWAZ’s Sun City Wastewater District, past decisions of the ACC require “Rate
19 Component 3” and “Rate Component 4” be treated as regulatory assets and amortized over the
20 life of the assets, and not the life of the financing. I agree with that treatment because, like other
21 depreciable assets, it essentially apportions the cost of the “Tolleson” assets paid by EWAZ over
22 the average service life of the assets, which is consistent with intergenerational equity – present
23 and future customers pay their fair share. There are four additional Tolleson assets requiring
24 amortization to be reflected in this rate application: one is a Rate Component 3 Reserve &

Page iv

1 Contingencies cost for which a 10.33 year amortization period is appropriate, consistent with the
2 contractual arraignment between EWAZ and Tolleson as well as ACC's previously approved
3 amortization of a similar cost; and there are three Rate Component 4 Treatment & Disposal
4 Equipment assets (dechlorination, solids handling and ammonia) for which a 15 year
5 amortization is appropriate, consistent with my recommendation of average service lives and
6 depreciation rates with respect to similar Treatment & Disposal Equipment utility plant.

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE NUMBER.

A. My name is John F. Guastella. My business address is Guastella Associates, LLC, 725 N. Highway A1A, Suite B103, Jupiter, FL 33477. My telephone number is (617) 423-3030.

Q. BRIEFLY DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.

A. I graduated from Stevens Institute of Technology with a degree in Mechanical Engineering. My professional career began with employment by the New York State Public Service Commission where I worked for 16 years. When I left the Commission to form my own consulting firm, I was Director of the Water Division responsible for the regulation of some 450 water utilities, involving all aspects of rate and valuation, and the service provided by the water utilities. While with the Commission I served as Chairman of the Staff Committee of the Water Committee of the National Association of Regulatory Utility Commissioners, ("NARUC"), and I was one of the founders and faculty of the NARUC Water Rate Seminar. I have continued, to date, as a faculty member of this rate seminar and have taught the basics of rate setting and utility regulation to some 7,500 students over the last 42 years. As a consultant, I have been involved in the preparation of rate analyses, valuations, appraisals, depreciation studies, and various studies regarding utility regulatory issues. I have testified as an expert in some 25 states with respect to rate setting, valuation, depreciation, appraisals and condemnation cases, before either regulatory agencies, courts or municipal hearings. A detailed statement of my qualifications and experience is attached as Exhibit JFG-A.

1 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

2 A. I am president of Guastella Associates, LLC.

3 **II. PURPOSE OF TESTIMONY**

4 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.**

5 A. The purpose of my testimony is to describe my review of the depreciation rates
6 applicable to the depreciable assets of the Company's wastewater systems, and provide
7 my opinion as to appropriate revisions. My testimony also addresses the amortization
8 periods of certain deferred costs paid by the Company under its agreement with the City
9 of Tolleson ("Tolleson Agreement") for the wastewater treatment provided by the City of
10 Tolleson for wastewater from the Company's Sun City Wastewater District.

11 **III. DEPRECIATION RATES**

12 **Q. PLEASE DESCRIBE THE APPROACH YOU USED REGARDING YOUR**
13 **ANALYSIS OF AVERAGE SERVICE LIVES AND DEPRECIATION RATES**
14 **FOR EWAZ's DEPRECIABLE WASTEWATER ASSETS.**

15 A. As confirmed in discussions with the Company, it was determined that my depreciation
16 analysis should be performed on the basis of comparative average service lives and
17 depreciation rates. The primary reasons for this approach are the lack of sufficient
18 retirement data because of the size of the Company's various districts and their historic
19 development, and the high cost of performing actuarial studies that would likely produce
20 incomplete or uncertain results for systems with limited retirement data. It has been my
21 experience that actuarial studies are rarely, if ever, performed for small water utilities
22 and I am not aware of any such studies for assets of a wastewater system. Instead,
23 depreciation rates are typically established on the basis of comparative analyses.

1 **Q. WHAT IS THE GOAL OF DEPRECIATION?**

2 A. The goal of depreciation for rate setting purposes is to allow utilities to recover the
3 original cost of the assets that are used and useful in providing service to their
4 customers, and at a level that spreads the recovery of the costs over the estimated life of
5 the assets so that each generation of customers pays its fair share of the costs according
6 to the use of the assets in providing service to them. The Uniform System of Accounts
7 published by the National Association of Regulatory Utility Commissioners
8 ("NARUC") defines depreciation as:

9 Depreciation, as applied to depreciable utility plant, means the loss in service value not
10 restored by current maintenance, incurred in connection with the consumption or
11 prospective retirement of utility plant in the course of providing service from causes
12 which are known to be in current operation and against which the utility is not
13 protected by insurance. Among the causes to be given consideration are wear and tear,
14 decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in
15 demand, and requirements of public authorities.

16
17 Under this definition, depreciation studies are performed in order to estimate the average
18 service lives of various depreciable assets, the major component with which to calculate
19 depreciation rates. Application of depreciation rates to the original cost of assets
20 establishes annual depreciation expense allowances in utility rates for service that will
21 meet the goal of reasonable cost recovery and intergenerational equity. In addition to
22 average service lives, the other component in the calculation of depreciation rates is net
23 salvage values, or salvage value less cost of removal.

24 **Q. WOULD YOU BRIEFLY DESCRIBE THE DEPRECIATION STUDY YOU**
25 **PREVIOUSLY PREPARED ON BEHALF OF EWAZ'S PREDECESSOR,**
26 **ARIZONA AMERICAN WATER COMPANY?**

1 A. In 2010, I prepared a depreciation study of Arizona American's water and wastewater
2 systems, which was performed on the basis of comparable data of average service lives
3 and depreciation rates for utilities throughout the country.

4 Q. **WAS THAT STUDY USEFUL IN YOUR DEVELOPMENT OF DEPRECIATION**
5 **RECOMMENDATIONS FOR EWAZ'S WASTEWATER ASSETS IN THIS**
6 **CASE?**

7 A. Yes. The comparable data in that study were primarily for assets of water utilities on the
8 basis of which similar wastewater assets were assigned average service lives and
9 depreciation rates. It was also clear that the data for utilities located throughout the
10 country had climates that were not similar to Arizona, requiring judgement as to the
11 range of results that would best fit wastewater assets located in Arizona's climate, as well
12 as the more toxic consistency of wastewater as compared to water. In performing that
13 study, I also sought input from the ACC Staff who I expected had experience in Arizona
14 with respect to all the utilities under its jurisdiction. Specifically, as I stated in that study,

15 In an informal meeting with the ACC Staff in order to obtain input from the
16 perspective of the Company's economic regulator, various matters were raised by
17 Staff, essentially to assure that the depreciation study would consider all aspects
18 affecting depreciation. It is noted that, as Staff observed, certain items may be
19 subject to earlier retirement because of quality of materials used in construction
20 or for other unanticipated causes. Although we have applied judgment to each
21 account, there may be such items that will require special treatment. It is
22 suggested that the best way to deal with unusual circumstances would be to
23 establish additional sub-accounts in order to segregate special items and adjust
24 the depreciation rates to better meet those conditions if and when they occur.

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1 Having now observed that the Company has been using depreciation rates that have
2 been accepted by the ACC Staff,¹ my follow up with the Company was to determine
3 whether there are any factors with respect to specific assets that may be subject to earlier
4 retirements or unanticipated causes, as cautioned some 7 years ago, as well as just
5 recently by the ACC Staff, that are material enough to revise certain depreciation rates.

6 **Q. DID THE COMPANY IDENTIFY ANY PARTICULAR WASTEWATER**
7 **ASSETS THAT WARRANT REVISION OF APPLICABLE DEPRECIATION**
8 **RATES?**

9 **A.** Yes. In discussing my depreciation study with EWAZ's engineers, they expressed
10 concern about the depreciation rates applicable to the Treatment & Disposal Equipment
11 accounts and the Collection Sewers - Gravity account. To briefly summarize their
12 concerns, they discussed the impact of hydrogen sulfide that, while present in all
13 wastewater plants, has a greater impact in Arizona due to the relatively higher
14 temperatures, the decreased water use as a result of conservation efforts and seasonal
15 occupation, all of which increases the concentration of solids and organics into the
16 wastewater. The higher strength wastewater and high temperatures produce higher
17 concentrations of hydrogen sulfide, depletes oxygen and decreases pH levels. The result
18 is an increase in deterioration of concrete and metal structures and equipment. The
19 Company's engineers followed up with a White Paper report that provides a detailed

¹ February 5, 2016 Memorandum by ACC Staff on Depreciation Rates For Wastewater Companies
(<http://www.azcc.gov/Search.Asp>).

1 explanation of their experience and findings at EWAZ's wastewater districts. The

2 White Paper is attached as Exhibit JFG-2.

3 **Q. DID YOU REVISE THE DEPRECIATION RATES TO REFLECT THESE**
4 **CONDITIONS?**

5 **A.** Yes. With respect to the Treatment & Disposal Equipment accounts, I reduced the
6 average service life from 20 years to 15 years, resulting in an increase in depreciation
7 rates from 5.0% to 6.67%. With respect to the Collection Sewers – Gravity account,
8 about 25% or more of the total cost in that account includes the cost of manholes that are
9 more affected by the adverse conditions described by the Company's engineers than the
10 sewer mains in terms of their average service life. Accordingly, I weighted the average
11 service life by assigning 10 years to 25% of the cost and leaving the remaining 75% of
12 the cost at the 50 years as reflected in the existing 2.0% depreciation rates. The result is a
13 weighted 40 year average service life, and a 2.50% depreciation rate. The depreciation
14 rates I am recommending, including these revisions, are contained in Exhibit JFG-1.

15 **Q. ARE THESE THE ONLY REVISIONS YOU ARE RECOMMENDING TO BE**
16 **MADE TO WASTEWATER DEPRECIATION RATES RECOMMENDED BY**
17 **THE ACC STAFF?**

18 **A.** Yes. With these exceptions for future use, the depreciation rates recommended by the
19 ACC Staff reflect conditions typically found in Arizona where the Company's assets are
20 located. The rates that the Company has been applying are inconsistent among districts
21 and adopting rates that are consistent among districts for similar equipment is appropriate
22 both under stand-alone treatment of the districts as well as under a consolidated

1 paradigm. I find the depreciation rates recommended by the ACC Staff are not out of
2 line with general comparative data on a regional basis and, more importantly, reflect the
3 judgement of both the Company and ACC Staff who are most familiar with local
4 conditions.

5 **IV. TOLLESON AGREEMENT**

6 **Q. WOULD YOU BRIEFLY DESCRIBE WHAT IS KNOWN AS THE “TOLLESON**
7 **AGREEMENT”?**

8 **A.** Yes. The Tolleson Agreement is a long term agreement under which the City of Tolleson
9 treats at its Tolleson Wastewater Treatment Plant the wastewater of the Company’s Sun
10 City Wastewater District which does not have its own treatment facility. The Company
11 pays for the wastewater treated under the Tolleson Agreement in accordance with four
12 “Rate Components”; the first two are financing and operating costs that the ACC has
13 treated for rate setting purposes as part of the Company’s operating expenses, and Rate
14 Components 3 and 4 are the Company’s upfront payments for capital costs that the ACC
15 treats as deferred regulatory assets. For rate setting purposes, the ACC has required the
16 Company to recover the cost of the regulatory assets over the life of the assets, and not
17 over the life of the financing of the payments to the City of Tolleson.

18 **Q. DO YOU AGREE WITH THE ACC’S RATE SETTING TREATMENT OF THE**
19 **REGULATORY ASSETS BY AMORTIZING THE COSTS OVER THE LIFE OF**
20 **THE ASSETS?**

21 **A.** Yes. For rate setting purposes, the cost of the regulatory assets is essentially the same as
22 the assets directly owned by the Company, for which the recovery of the cost is through

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1 the annual amortization over the life of the assets and the unamortized balance is
2 includable in rate base to recognize the associated carrying cost, or cost of capital.

3 **Q. THERE ARE FOUR NEW DEFERRED COSTS THAT MUST BE TREATED**
4 **FOR RATE SETTING IN THIS CASE: RATE COMPONENT - 3 RESERVES &**
5 **CONTINGENCIES, RATE COMPONENT 4 - DECHLORINATION PROJECT,**
6 **RATE COMPONENT 4 - SOLIDS HANDLING PROJECT, AND RATE**
7 **COMPONENT 4 – AMMONIA PROJECT. WHAT AMORTIZATION PERIODS**
8 **DO YOU RECOMMEND FOR THESE RATE COMPONENTS?**

9 **A.** The Rate Component 3 – Reserves & Contingencies is a category that is intended to be
10 used for investments in capital assets that have an estimated service life of 10 years or
11 less. In a previous rate case proceeding, an existing similar category was allowed to be
12 amortized over 10.33 years. Since this period has been established as a reasonable
13 amortization period by the ACC, the Company is proposing a 10.33 year amortization
14 period to the new additions to Rate Component 3 – Reserves and Contingencies. In my
15 opinion, it would be consistent and appropriate also to use 10.33 years for this new
16 deferred amount. Because the deferred costs of the three projects under Rate Component
17 4 are assets similar to those in the Company's Treatment & Disposal accounts, I
18 recommend that they be amortized over the same average service life applicable to those
19 accounts, or 15 years.

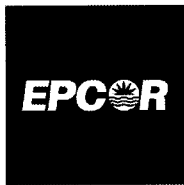
20 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

21 **A.** Yes.

EXHIBIT JFG-1

**EPCOR Water Arizona Inc.
Recommended Depreciation Rates
Wastewater Districts**

A/C No.	Description	Average Service Lives	Annual Depreciation Rates
Collection Plant			
354.2	Structures and Improvements	30	3.33%
355.0	Power Generation Equipment	20	5.00%
355.5	Power Generation Equipment - RWTP	20	5.00%
360.0	Collection Sewers - Force	50	2.00%
361.0	Collection Sewers - Gravity	40	2.50%
362.0	Special Collecting Structures	50	2.00%
363.0	Service to Customers	50	2.00%
364.0	Flow Measuring Devices	10	10.00%
Pumping Plant			
354.3	Structures and Improvements	30	3.33%
355.3	Power Generation Equipment	20	5.00%
370.0	Receiving Wells	30	3.33%
371.0	Pumping Equipment	8	12.50%
371.1	Pumping Equipment - Electric	8	12.50%
371.2	Pumping Equipment - Other Power	8	12.50%
Treatment Plant			
354.4	Structures and Improvements	30	3.33%
355.5	Power Generation Equipment	20	5.00%
380.0	Treatment & Disposal Equip.	15	6.67%
380.05	Treatment & Disposal Equip.	15	6.67%
380.1	Treatment & Disposal Equip.	15	6.67%
380.2	Treatment & Disposal Equip.	15	6.67%
380.25	Treatment & Disposal Equip.	15	6.67%
380.3	Treatment & Disposal Equip.	15	6.67%
380.35	Treatment & Disposal Equip.	15	6.67%
380.4	Treatment & Disposal Equip.	15	6.67%
380.5	Treatment & Disposal Equip.	15	6.67%
380.6	Treatment & Disposal Equip.	15	6.67%
380.625	Treatment & Disposal Equip.	15	6.67%
380.65	Treatment & Disposal Equip.	15	6.67%
381.0	Plant Sewers	20	5.00%
382.0	Outfall Sewer Lines	30	3.33%
389.1	WW Other Pit & Misc. Equip. Intangible	15	6.67%
389.6	Other P/E - CPS	15	6.67%
General Plant			
354.5	Structures and Improvements	30	3.33%
390.0	Office Furniture & Equipment	15	6.67%
390.2	Computers & Peripheral	5	20.00%
390.3	Computer Software	5	20.00%
391.0	Transportation Equipment	5	20.00%
392.0	Stores Equipment	25	4.00%
393.0	Tools, Shop and Garage Equip.	20	5.00%
394.0	Laboratory Equipment	10	10.00%
395.0	Power Operated Equipment	20	5.00%
396.0	Communication Equipment	10	10.00%
397.0	Miscellaneous Equipment	10	10.00%
398.0	Other Tangible Plant	10	10.00%



Memorandum

DATE: April 5, 2016
TO: Andrew Brown, P.E.
FROM: Paul Kinshella, P.E.
SUBJECT: White Paper - "Useful Life of WW Infrastructure (Plant Equipment and Pipelines)"

Attached is a White Paper addressing the Useful Life of WW Infrastructure (Plant & Equipment and Pipelines) in Arizona. This paper was developed to quantify and qualify the conditions that impact the life of wastewater equipment in Arizona, primarily extremely warm temperatures and water conservation efforts. As a result, infrastructure and equipment do not achieve the life expectancy that may be achieved in other environments.

WW Infrastructure (Plant Equipment and Pipelines) – Useful Life

General Wastewater Treatment Plant Conditions

Fugitive hydrogen sulfide (H₂S) is present at all wastewater treatment plants. Plants with odor scrubbers only reduce the airborne H₂S to the level that is required to meet air quality standards. The remainder of the H₂S is discharged into the air. Some of the H₂S is still in the wastewater after it passes through the headworks of the wastewater plant. This H₂S is released in non-scrubbed process area of the treatment plant.

H₂S production is impacted by temperature, wastewater strength and lack of oxygen. Wastewater temperatures in the Phoenix area are the highest in the country. Water conservation has decreased the amount of water discharged from each household. People flush less water into the wastewater collection system. They put the same or increasing amounts of solids and organics into the wastewater. This results in an ever increasing strength of wastewater. The higher strength and higher temperature wastewater produces greater concentrations of H₂S. The high strength wastewater quickly strips out any available oxygen leaving an ideal environment for the production of H₂S in the wastewater collection systems EPCOR operates. Our H₂S problem is growing and continually shortening the life of the infrastructure and equipment we use to transport and treat wastewater.

Off-gassed H₂S serves as a food for the bacterial slime layer that grows in the warm moist environments in the wastewater treatment and collection systems. The first stage of the bacteria that grows lowers the pH (through the formation of sulfuric acid) by one pH unit. The first step takes the pH from 7 to 6. The pH of 6 then selects a different strain of bacteria. This strain of bacteria now lowers the pH from 6 to 5. This cycle continues until the pH is 2 or below. Sulfuric acid at this pH level quickly destroys concrete and metal structures and equipment.

Processes at the treatment plant or in the wastewater collection system that are covered have high humidity in the airspace above the water level. As the temperature cools this humidity condenses on the metal and other materials above the water level. Covers over the aerated bioreactors not only hold in moisture but result in higher levels of carbon dioxide in the confined air space. Carbon dioxide can form carbonic acid corroding metals or weakening the surface of concrete structures.

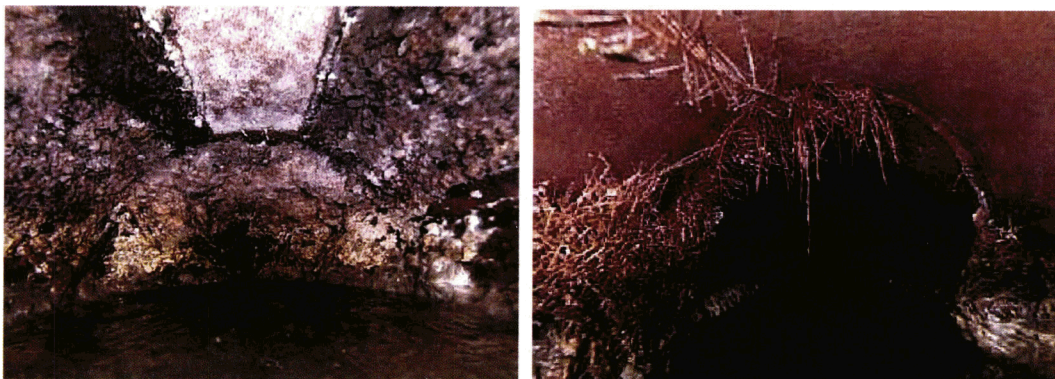
We use chlorine for disinfection at our treatment plants. It is not possible to keep all the chlorine contained in the piping and storage vessels. Fugitive chlorine even at very low levels of concentration corrodes equipment at the wastewater treatment and pumping systems. The copper in control systems, electrical equipment and motors has a shortened life due to the combined exposure of small amounts of chlorine gas and H₂S.

Wastewater Collection Mains

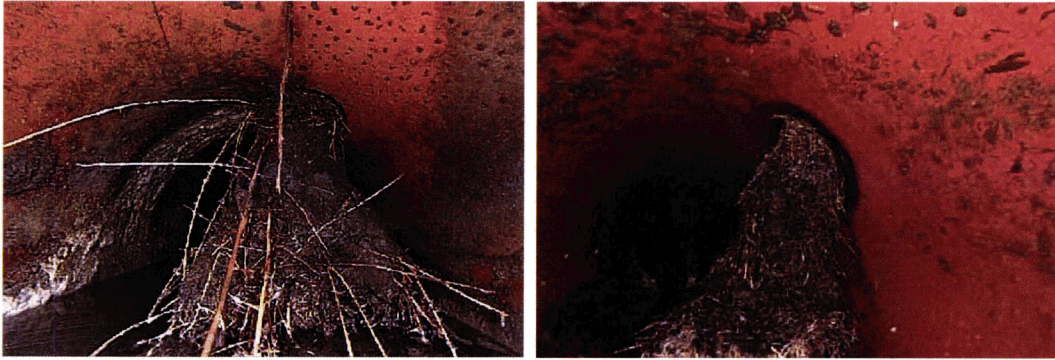
There are two areas of the wastewater collection system that have different type of failure modes. Each has separate issues the lead to a shortened useful life.

Manholes represent over 25% of the cost of a gravity sewer collection system. The manholes are constructed of concrete and are subject to H₂S corrosion. If the manhole is sufficiently corroded it will collapse and result in a sewer blockage and overflow. The H₂S issue is worse in the collection system in areas with a high percentage of seasonal occupation. Up to 50% of the houses in neighborhoods EPCOR serves are not occupied in the summer. This decreases the flow during these months. This results in solids being deposited in the sewer lines. These solids decompose and form major quantities of H₂S. This H₂S is forced out of the sewer mains twice daily as flow increase in the morning and after dinner. The pick holes in manhole lids are where the gas is exhausted. This results in high concentrations of H₂S in the manholes for extended periods. The H₂S greatly shortens the life of manholes in areas such as Sun City and Sun City West.

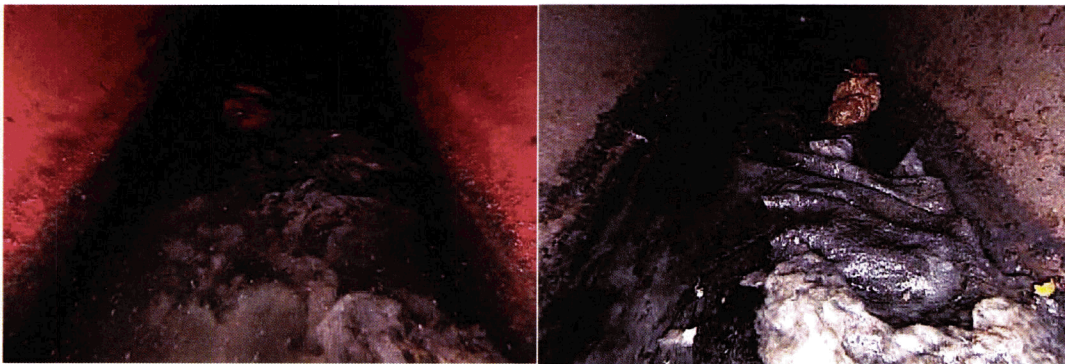
Sewer mains in Sun City and Sun City West are primarily located under or behind the sidewalk rather than in the street. This makes them more vulnerable to root intrusion. As wastewater collection systems age, one of the first areas in the sewer pipes to deteriorate is the material used to make the joints water tight. This is true of both vitrified clay and PVC pipes. Once the joint deteriorates sufficiently to allow seepage, roots in the vicinity will enter the pipe. As the roots grow, they break the pipe joint open resulting in failure of the pipe. This is a common failure in both Sun City and Sun City West due to the location of the wastewater mains. The laterals of these pipes experience the same issues and damage at or near the sewer wye connecting the main to the lateral quickly causes a premature failure of the pipe.



Root intrusion clogging the pipe causing solids deposition and increasing H₂S production. Photos from CCTV inspection of EPCOR sewers



Root intrusion breaking the pipes, causing deposition resulting in H₂S formation



Solids deposition - lack of flow in the summer time causing H₂S formation.

Wastewater Treatment Plants

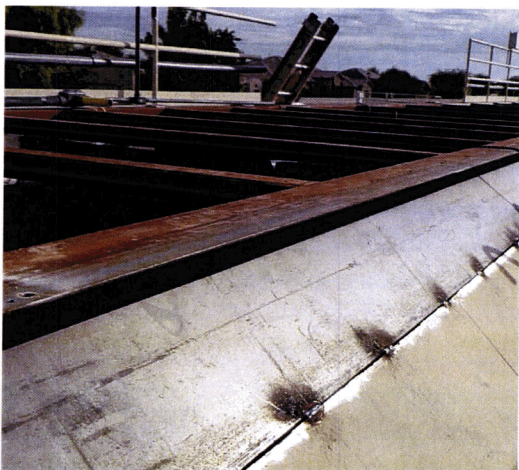
The preliminary and primary treatment processes of the plants operate in very harsh environments that severely limit the life of the equipment. These areas experience the highest H₂S levels. These areas are enclosed to limit the dissemination of odors which results in a high humidity environment. The diurnal atmospheric temperature changes condense moisture on the equipment. Corrosion and the rough service greatly shorten the life of equipment and the structures in these areas.

Specific equipment and processes in these areas are:

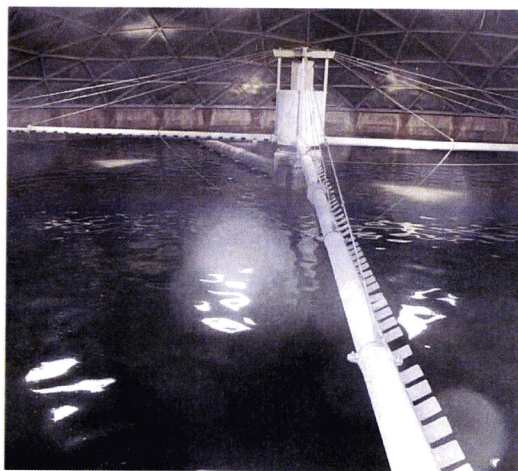
- Flow Measurement
- Bar Screens
- Grit Removal
- Primary Sedimentation Basins?



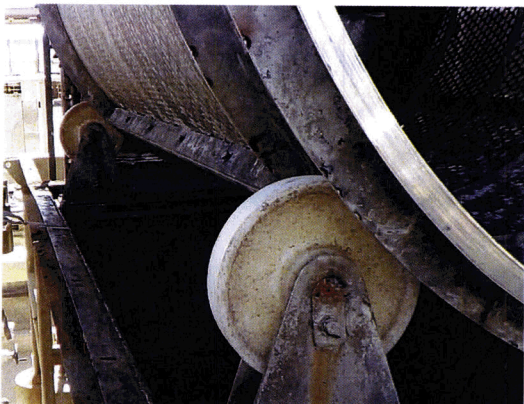
Corrosion of metal at wastewater treatment plants caused by H₂S in covered basins. Plant about 8 years old.



Repair of wastewater treatment tank replaced. Corroded metal removed for replacement



Odor containment structure in moist air causing corrosion shortening the life of the covers.



Raw wastewater screen located in a highly corrosive area with a very short life.



Concrete corrosion at a wastewater treatment plant

Aeration basin and secondary sedimentation basins are typically covered to limit fugitive odors. The covers increase the humidity and corrosion under the covers. Metal equipment and concrete in these process areas are exposed to carbonic acids. In order to treat wastewater to the recently required standards, anoxic/anaerobic zones without free oxygen must be present. These conditions decrease the service life of the equipment and concrete or steel basins in these areas.

The recent water quality requirements imposed on treatment plants, especially those that treat wastewater for reuse, require a high concentration of mixed liquor (biological solids) in the treatment process. The increase solids place a greater work load on the solids handling and treatment equipment. The sludge digester and treatment areas processes can produce H₂S gas. This gas shortens the life of the equipment and structures used for these processes. The sludge dewatering equipment must perform in a corrosive environment that limits the useful life of equipment. If the sludge is not dewatered, it must be transported in liquid form. The pumps and equipment using this transportation process have a shorter life due to the increase in solids from the biological process that must be treated and disposed.



Air diffuser damage – Expected life 5-8 years

Electrical equipment at wastewater treatment plants is challenged by two different modes of attack. Fugitive H₂S attacks the copper wire. This occurs primarily at the switch gear and control panels. This deterioration is compounded by manufacturers not making replacement parts for electrical equipment that is more than 10 years old. This is particularly true for variable frequency drives and the internal circuits that provide the control for this equipment.

There are electric cables throughout a wastewater plant to power the equipment. The failure mode for electrical equipment is the deterioration of the insulating cover on the wire cables. The life of the insulating material on the wires is shortened by the heat we experience in Arizona. If the power distribution is allowed to fail, it fails catastrophically. Replacement of cable in an unplanned event can take months and the processes that were fed by those cables will not provide treatment during these periods. Power cables must be replaced before failure. A wastewater plant must not let power cables go to the maximum life before replacement. The consequence of failure is too great.

In order to control the complex process now used to treat wastewater, a robust SCADA system must be in place. The systems consist of measuring devices, logic controllers and process adjustment equipment like valves, pumps and chemical feed equipment. This equipment is located in rough duty service areas. This limits the service life of the equipment. The electronics industry that supplies this equipment is constantly developing new equipment. This also means that they are no longer making parts for their older equipment (about 3 to 5 years). This lack of parts availability limits the life the equipment.

Lift Stations and Force Mains

Wastewater is held in the wet well of a lift station until sufficient volume is collected to allow the pump to run for sufficient time to allow the motor to dissipate the heat caused by start-up of the motor. Because this wastewater is held for a period of time, H₂S is generated. The decrease in flow the EPCOR system experiences in the summer months caused by the seasonal residence issues only increases this problem.

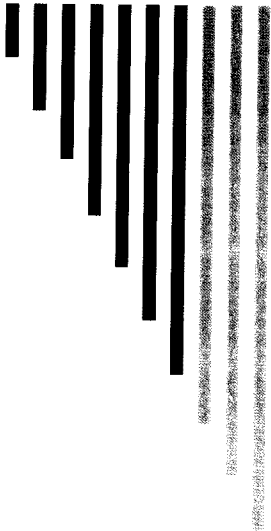
The H₂S decreases the life of the lift station concrete, the pumps and other mechanical equipment at the station especially in the wet well. H₂S that is not off gassed in the wet well is pumped with the wastewater into the force main. Because the lift station pumps run an off and on cycle, the wastewater sits in the force main for extended periods. This is especially true during summer months. The H₂S off gasses in the force main and collects at any high points inevitably left in the main. This H₂S gas shortens the life of all pipe materials but especially any metal pipes or pipe fittings. Air relief valves are installed on force mains to vent the H₂S that has collected in the pipe. This H₂S corrodes the valves and fittings that were installed to release the trapped gas. This shortens the life of the wastewater force main collection systems.

Electrical/SCADA Equipment and Motors

Very small amounts of H₂S are very destructive to the copper in electric motors, SCADA equipment, and to some degree mechanical equipment at a wastewater plant. This corrosion attack also affects the wire carrying power to the treatment processes at a wastewater treatment plant.

Guastella Associates, LLC

Qualifications & Experience



**Rate Setting
Valuation
Management
Consulting**

...SERVING REGULATED AND UNREGULATED WATER AND WASTEWATER UTILITIES SINCE 1978

725 N. Highway A1A, Suite B103,
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INTRODUCTION

GUASTELLA ASSOCIATES, LLC

Guastella Associates, LLC ("formerly John F. Guastella Associates, Inc.") is a consulting firm that specializes in providing utility rate setting, valuation and management services for public and privately-owned water and wastewater utilities.

John F. Guastella established Guastella Associates in 1978. Previously, Mr. Guastella was Director of the Water Division of the New York Public Service Commission. The Water Division provided the New York Commission with technical assistance in regulating the rates and service provided by approximately 450 privately-owned utilities. During the period from 1987 through 1991, Mr. Guastella also managed a 5,500 customer water utility in New York State. In 1989, Guastella Associates acquired the rates and valuation section of Coffin & Richardson, Inc., a general consulting firm that also provided a full range of services to water and wastewater utilities. Since 2009, Guastella Associates has served as the general manager of Daufuskie Island Utility Company, Inc. ("DIUC"), responsible for its day-to-day operations, billing, bookkeeping, financing, capital improvement projects and regulatory relations. DIUC provides water and wastewater service to some 550 connected customers and 600 availability customers located on Daufuskie Island South, Carolina.

As can be seen from the following qualifications and experience, key staff members have many years of combined experience in virtually every aspect of utility rate setting and valuation. The technical expertise of key staff, combined with their former employment by real estate and utility companies, a regulatory agency, and the management of water utilities, provides a total perspective towards addressing the rates and valuation needs of today's water and wastewater utilities.

Guastella Associates has assisted the largest privately-owned utilities with respect to the most challenging issues, performing complex studies and providing expert testimony in administrative hearings as well as court proceedings. In addition, our client base has included hundreds of small water and wastewater utilities - - obtaining rate increases that turn operating losses into profits, posturing them for financing, correcting record keeping errors and, for some, negotiating their sale at multiples of their original cost net investment rate base. Some of our most successful assignments have been to help establish new developer-related water and wastewater utilities, applying the correct principles at the outset in order to develop fully compensatory initial rates, record keeping procedures and asset management, so they are structured to become self-sustaining utilities that will achieve the highest possible profit and ultimate market value.

Our wide-range of experience and expertise has enabled us to successfully address the special needs of large investor-owned utilities in rate cases and condemnation proceedings.



OUTLINE OF SERVICES GUASTELLA ASSOCIATES, LLC

Guastella Associates, LLC ("formerly John F. Guastella Associates, Inc.") is a consulting firm specializing in utility management, valuation, appraisals and rate determinations. Guastella Associates has been providing professional services to regulated and unregulated utilities since 1978.

Specific areas of expertise includes:

I. RATE ANALYSIS

A. Revenue Requirements

1. Examination of books and records -- revenues, expenses and capital investment.
2. Determination of the cost of providing service (revenue requirement) -- normalize historical data, establish known changes and perform projections.

B. Rate Design

1. Perform cost allocation studies to establish cost of service for residential, commercial, industrial, wholesale and fire protection customers, and for other special users.
2. Develop rate structures -- combine billing analyses and cost allocations to form usage rates, flat rates, minimum service and facilities charges, and such other special charges as connection fees, availability rates, etc.

C. Reports

1. Investor-owned utilities -- prepare complete rate filings for submission to regulatory agencies; prepare testimony, exhibits, and assist in all aspects of adjudication process.
2. Municipal utilities -- prepare detailed rate reports in support of rate increases for use by municipal officials and presentation at municipal hearings.



OUTLINE OF SERVICES

GUASTELLA ASSOCIATES, LLC

II. VALUATIONS

A. Appraisals

1. Eminent domain condemnation proceedings, negotiations for sale of utilities, damage claims for insurance and ad valorem tax and management purposes.
2. Determinations of original cost, replacement cost, reproduction cost and market value, including going concern value.
3. Calculation of the present value of cash flow under the income approach to market value determinations.
4. Analyses of market data under the sales comparison approach.

B. Depreciation

1. Actuarial studies using retirement rate or simulated plant balances methods to determine average service lives of physical property, theoretical depreciation reserve requirements and depreciation rates.
2. Establish affordable depreciation rates on the basis of comparative analyses of similar property of other utilities and practices of regulatory agencies and association

C. Feasibility Studies

1. Utility acquisitions by investors and municipalities.
2. Economic studies to establish extension of service costs and policy -- inside and outside service area.
3. Main extension agreements, guaranteed revenue contracts, refund provisions.

D. Financial Planning

1. Establish financing requirements for capital improvements.
2. Determine revenue and rate needs for various combinations of debt and equity financing.
3. Assist certain utilities in securing financing.
4. Establish financing needs, initial rates and regulatory approval of proposed new utilities.

III. MANAGEMENT

A. Operations

1. Provides general management of water and wastewater utilities.
2. Assist in day-to-day decisions as to utility accounting and related impact on rates.
3. Solve problems as to record keeping in accordance with regulatory requirements and prescribed systems of accounts.
4. Establish general policy and tariff provisions for customer service, billing, collecting, meter testing, complaint handling, and customer and regulatory relations.

B. Administrative

1. Coordinate activities with regulatory agencies to assure compliance with rules, regulations and orders.
2. Negotiations for purchase or sale of utility property and special contracts.

C. Training

1. On-the-job training for employees while working on various projects.
2. Special educational seminars on all aspects of utility rate settings, financing, valuation and rules.

PROFESSIONAL QUALIFICATIONS AND EXPERIENCE
of
JOHN F. GUASTELLA

B.S., Mechanical Engineering, Stevens Institute of Technology, 1962

Member:

American Water Works Association, Lifetime Member
National Association of Water Companies
New England Water Works Association, Lifetime Member

Committees:

AWWA, Water Rates Committee (Water Rates Manual M-1, 1983 Edition)
National Association of Regulatory Utility Commissioners (NARUC) and NAWC, Joint-Committee on Rate Design
NAWC, Rates and Revenues Committee
NAWC, Small Water Company Committee

Mr. Guastella is President of Guastella Associates, LLC ("formerly John F. Guastella Associates, Inc.") which provides management, valuation and rate consulting services for municipal and investor-owned utilities, as well as regulatory agencies. His clients include utilities in the states of Alaska, Arizona, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Maine, Maryland, Massachusetts, Missouri, Michigan, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Pennsylvania, South Carolina, Texas, Rhode Island and Virginia. He has provided consulting services that include all aspects of utility regulation and rate setting, encompassing revenue requirements, revenues, operation and maintenance expenses, depreciation, taxes, return on investment, cost allocation and rate design. He has performed depreciation studies for the establishment of average service lives and depreciation rates of utility property. He has performed appraisals of utility companies for management purposes and in connection with condemnation proceedings. He has also negotiated the sale of utility companies. He directs the general management of a water and wastewater utility in South Carolina.

Mr. Guastella served for more than four years as President of Country Knolls Water Works, Inc., a water utility that served some 5,500 customers in Saratoga County, New York. He also served as a member of the Board of Directors of the National Association of Water Companies.

Mr. Guastella has qualified and testified as an expert witness before regulatory agencies and municipal jurisdictions in the states of Alaska, Arizona, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Maryland, Massachusetts, Missouri, Montana, Nevada, New Hampshire, New Mexico, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Carolina, Texas and Virginia.

Prior to establishing his own firm, Mr. Guastella was employed by the New York State Public Service Commission for sixteen years. For two years he was involved in the regulation of electric and gas utilities, with the remaining years devoted to the regulation of water utilities. In 1970, he was promoted to Chief of Rates and Finance in the Commission's Water Division. In 1972, he was made Assistant Director of the Water Division. In 1974, he was appointed by Alfred E. Kahn, then Chairman of the Commission, to be Director of the Water Division, a position he held until he resigned from the Commission in August 1978.

At the Commission, his duties included the performance and supervision of engineering and economic studies concerning rates and service of many public utilities. As Director of the Water Division, he was responsible for the regulation of more than 450 water companies in New York State and headed a professional staff of 32 engineers and three technicians. A primary duty was to attend Commission sessions and advise the Commission during its decision making process. In the course of that process, an average of about fifty applications per year would be reviewed and analyzed. The applications included testimony, exhibits and briefs

involving all aspects of utility valuation and rate setting. He also made legislative proposals and participated in drafting Bills that were enacted into law: one expanded the N.Y. Public Service Commission's jurisdiction over small water companies and another dealt specifically with rate regulation and financing of developer-related water systems.

In addition to his employment and client experience, Mr. Guastella served as Vice-Chairman of the Staff-Committee on Water of the National Association of Regulatory Utility Commissioners (NARUC). This activity included the preparation of the "Model Record-Keeping Manual for Small Water Companies," which was published by the NARUC. This manual provides detailed instruction on the kinds of operation and accounting records that should be kept by small water utilities, and on how to use those records.

Each year since 1974 he has prepared study material, assisted in program coordination and served as an instructor at the Eastern Annual Seminar on Water Rate Regulation sponsored over the years by the NARUC in conjunction with the University of South Florida, Florida Atlantic University, the University of Utah, Florida State University, the University of Florida and currently Michigan State University. In 1980 he was instrumental in the establishment of the Western NARUC Rate Seminar and has annually served as an instructor since that time. This course is recognized as one of the best available for teaching rate-setting principles and methodology. More than 7,500 students have attended this course, including regulatory staff, utility personnel and members of accounting, engineering, legal and consulting firms throughout the country.

Mr. Guastella served as an instructor and panelist in a seminar on water and wastewater regulation conducted by the Independent Water and Sewer Companies of Texas. In 1998, he prepared and conducted a seminar on basic rate regulation on behalf of the New England Chapter of the National Association of Water Companies. In 2000 and 2001, Mr. Guastella developed and conducted a special seminar for developer related water and wastewater utilities in conjunction with Florida State University, and again in 2003 in conjunction with the University of Florida. It provided essential training for the financial structuring of small water and wastewater utilities, rate setting, financing and the establishment of their market value in the event of a negotiated sale or condemnation. In 2004, he prepared and conducted a special workshop seminar on behalf of the Office of Regulatory Staff of South Carolina, covering rate setting, valuation and general regulation of water and wastewater utilities. In 2006, he participated in an expert workshop on full cost pricing conducted by the U. S. Environmental Protection Agency in coordination with the Institute of Public Utilities, Michigan State University. In 2006 and again in 2013, he prepared and conducted a special seminar on rate setting and valuation on behalf of the New York Chapter of the NAWC. In 2007 and again in 2015, he prepared and conducted a special seminar on rate setting and valuation on behalf of the New England Chapter of NAWC.

Mr. Guastella has made presentations on a wide variety of rate, valuation and regulatory issues at meetings of the National Association of Regulatory Utility Commissioners, the American Water Works Association, the New England Water Works Association, the National Association of Water Companies, the New England Conference of Public Utilities Commissioners, the Florida, New England, New Jersey and New York Chapters of NAWC, the Mid-America Regulatory Conference, the Southeastern Association of Regulatory Utility Commissioners, the Pennsylvania Environmental Conference, the Public Utility Law Section of the New Jersey Bar Association, and the NAWC Water Utility Executive Council.

John F. Guastella
List of Proceedings in which
Expert Testimony
was Presented

Year	Client	State	Regulatory Docket/Case Number
1966	Sunhill Water Corporation	New York	23968
1967	Amagansett Water Company	New York	24210
1967	Worley Homes, Inc.	New York	24466
1968	Amagansett Water Company	New York	24718
1968	Amagansett Water Company	New York	24883
1968	Sunhill Water Corporation	New York	23968
1968	Worley Homes, Inc.	New York	Supreme Court
1969	Amagansett Water Supply	New York	24883
1969	Citizens Water Supply Co.	New York	25049
1969	Worley Homes, Inc.	New York	24466/24992
1970	Brooklyn Union Gas Company	New York	25448
1970	Consolidated Edison of New York	New York	25185
1971	Hudson Valley Water Companies	New York	26093
1971	Jamaica Water Supply Company	New York	26094
1971	Port Chester Water Works, Inc.	New York	25797
1971	U & I Corp. - Merrick District	New York	26143
1971	Wanakah Water Company	New York	25873
1972	Spring Valley Water Company	New York	26226
1972	U & I Corp. - Woodhaven District	New York	26232
1973	Citizens Water Supply Company	New York	26366
1978	Rhode Island DPU&C (Bristol County)	Rhode Island	1367A
1979	Candlewick Lake Utilities Co.	Illinois	76-0218
1979	Candlewick Lake Utilities Co.	Illinois	76-0347
1979	Candlewick Lake Utilities Co.	Illinois	78-0151
1979	Jacksonville Suburban Utilities	Florida	770316-WS
1979	New York Water Service Corporation	New York	27594
1979	Salem Hills Sewerage Disposal Corp. v. V. of Voorheesville	New York	Supreme Court

John F. Guastella
List of Proceedings in which
Expert Testimony
was Presented

Year	Client	State	Regulatory Docket/Case Number
1979	Seabrook Water Corporation	New Jersey	7910-846
1979	Southern Utilities Corporation	Florida	770317-WS
1979	Township of South Brunswick	New Jersey	Municipal
1979	Westchester Joint Water Works	New York	Municipal
1979	Woodhaven Utilities Corporation	Illinois	77-0109
1980	Crestwood Village Sewer Company	New Jersey	BPU 802-78
1980	Crestwood Village Water Company	New Jersey	BPU 802-77
1980	Gateway Water Supply Corporation	Texas	Municipal
1980	GWV-Central Florida District	Florida	800004-WS
1980	Jamaica Water Supply Company	New York	27587
1980	Rhode Island DPU&C (Newport Water)	Rhode Island	1480
1981	Briarcliff Utilities, Inc.	Texas	3620
1981	Candlewick Lake Utilities Co.	Illinois	81-0011
1981	Caroline Water Company, Inc.	Virginia	810065
1981	GDU, Inc. - Northport	Florida	Municipal
1981	GDU, Inc. - Port Charlotte	Florida	Municipal
1981	GDU, Inc. - Port Malabar	Florida	80-2192
1981	Hobe Sound Water Company	Florida	8000776
1981	Lake Buckhorn Utilities, Inc.	Ohio	80-999
1981	Lake Kiowa Utilities, Inc.	Texas	3621
1981	Lakengren Utilities, Inc.	Ohio	80-1001
1981	Lorelei Utilities, Inc.	Ohio	80-1000
1981	New York Water Service Corporation	New York	28042
1981	Rhode Island DPU&C (Newport Water)	Rhode Island	1581
1981	Shawnee Hills Utility Company	Ohio	80-1002
1981	Smithville Water Company, Inc.	New Jersey	808-541
1981	Spring Valley Water Company, Inc.	New York	27936
1981	Spring Valley Water Company, Inc.	New York	27936
1981	Sunhill Water Corporation	New York	27903

John F. Guastella
List of Proceedings in which
Expert Testimony
was Presented

Year	Client	State	Regulatory Docket/Case Number
1981	Swan Lake Water Corporation	New York	27904
1982	Chesterfield Commons Sewer Company	New Jersey	822-84
1982	Chesterfield Commons Water Company	New Jersey	822-83
1982	Crescent Waste Treatment Corp.	New York	Municipal
1982	Crestwood Village Sewer Company	New Jersey	821-33
1982	Crestwood Village Water Company	New Jersey	821-38
1982	Salem Hills Sewerage Disposal Corp.	New York	Municipal
1982	Township of South Brunswick	New Jersey	Municipal
1982	Woodhaven Utilities Corporation	Illinois	82-0167
1983	Country Knolls Water Works, Inc.	New York	28194
1983	Heritage Hills Water Works Corp.	New York	28453
1984	Crestwood Village Sewer Company	New Jersey	8310-861
1984	Crestwood Village Water Company	New Jersey	8310-860
1984	Environmental Disposal Corp.	New Jersey	816-552
1984	GDU, Inc. - Port St. Lucie	Florida	830421
1984	Heritage Village Water (water/sewer)	Connecticut	84-08-03
1984	Hurley Water Company, Inc.	New York	28820
1984	New York Water Service Corporation	New York	28901
1985	Deltona Utilities (water/sewer)	Florida	830281
1985	J. Filiberto Sanitation, Inc.	New Jersey	8411-1213
1985	Sterling Forest Pollution Control	New York	Municipal
1985	Water Works Enterprise, Grand Forks	North Dakota	Municipal
1986	GDU, Inc. - Port Charlotte	Florida	Municipal
1986	GDU, Inc. - Sebastian Highlands	Florida	Municipal
1986	Kings Grant Water/Sewer Companies (settled)	New Jersey	WR8508-868
1986	Mt. Ebo Sewage Works, Inc.	New York	Municipal
1986	Sterling Forest Pollution Control	New York	Municipal
1987	Country Knolls Water Works, Inc.	New York	29443
1987	Crestwood Village Sewer Co. (settled)	New Jersey	WR8701-38

John F. Guastella
List of Proceedings in which
Expert Testimony
was Presented

Year	Client	State	Regulatory Docket/Case Number
1987	Deltona Utilities – Marco Island	Florida	85151-WS
1987	Deltona Utilities, Inc. - Citrus Springs (settled)	Florida	870092-WS
1987	First Brewster Water Corp. v. Town of Southeast (settled)	New York	Supreme Court
1987	GDU, Inc. - Silver Springs Shores	Florida	870239-WS
1987	Ocean County Landfill Corporation	New Jersey	SR-8703117
1987	Palm Coast Utility Corporation	Florida	870166-WS
1987	Sanlando Utilities Corp. (settled)	Florida	860683-WS
1987	Township of South Brunswick	New Jersey	Municipal
1987	Woodhaven Utilities Corp. (settled)	Illinois	87-0047
1988	Crescent Estates Water Co., Inc.	New York	88-W-035
1988	Elizabethtown Water Co.	New Jersey	OAL PUC3464-88
1988	Heritage Village Water Company	Connecticut	87-10-02
1988	Instant Disposal Service, Inc.	New Jersey	SR-87080864
1988	J. Filiberto Sanitation v. Morris County Transfer Station	New Jersey	01487-88
1988	Ohio Water Service Co.	Ohio	86-1887-WW-CO1
1988	St. Augustine Shores Utilities	Florida	870980-WS
1989	Elizabethtown Water Co.	New Jersey	BPU WR89020132J
1989	GDU (FPSC generic proceeding as to rate setting procedures)	Florida	880883-WS
1989	Gordon's Corner Water Co.	New Jersey	OAL PUC479-89
1989	Heritage Hills Sewage Works	Connecticut	Municipal
1989	Heritage Village Water Company	Connecticut	87-10-02
1989	Palm Coast Utility Corporation	Florida	890277-WS
1989	Southbridge Water Supply Co.	Massachusetts	DPU 89-25
1989	Sterling Forest Water Co.	New York	PSC 88-W-263
1990	American Utilities, Inc. - United States Bankruptcy Court	New Jersey	85-00316
1990	City of Carson City	Nevada	Municipal
1990	Country Knolls Water Works, Inc.	New York	90-W-0458
1990	Elizabethtown Water Company	New Jersey	WR900050497J

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List of Proceedings in which
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Year	Client	State	Regulatory Docket/Case Number
1990	Kent County Water Authority	Rhode Island	1952
1990	Palm Coast Utility Corporation	Florida	871395-WS
1990	Southern States Utilities, Inc.	Florida	Workshop
1990	Trenton Water Works	New Jersey	WR90020077J
1990	Waste Management of New Jersey	New Jersey	SE 87070552
1990	Waste Management of New Jersey	New Jersey	SE 87070566
1991	City of Grand Forks	North Dakota	Municipal
1991	Gordon's Corner Water Co.	New Jersey	OAL PUC8329-90
1991	Southern States Utilities, Inc.	Florida	900329-WS
1992	Elizabethtown Water Co.	New Jersey	WR 91081293J
1992	General Development Utilities, Inc. - Port Malabar Division	Florida	911030-WS
1992	General Development Utilities, Inc. - West Coast Division	Florida	911067-WS
1992	Heritage Hills Water Works, Inc.	New York	92-2-0576
1993	General Development Utilities, Inc. - Port LaBelle Division	Florida	911737-WS
1993	General Development Utilities, Inc. - Silver Springs Shores	Florida	911733-WS
1993	General Waterworks of Pennsylvania - Dauphin Cons. Water Supply	Pennsylvania	R-00932604
1993	Kent County Water Authority	Rhode Island	2098
1993	Southern States Utilities - FPSC Rulemaking	Florida	911082-WS
1993	Southern States Utilities - Marco Island	Florida	920655-WS
1994	Capital City Water Company	Missouri	WR-94-297
1994	Capital City Water Company	Missouri	WR-94-297
1994	Elizabethtown Water Company	New Jersey	WR94080346
1994	Elizabethtown Water Company	New Jersey	WR94080346
1994	Environmental Disposal Corp.	New Jersey	WR94070319
1994	General Development Utilities - Port Charlotte	Florida	940000-WS
1994	General Waterworks of Pennsylvania	Pennsylvania	R-00943152

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Year	Client	State	Regulatory Docket/Case Number
1994	Hoosier Water Company - Mooresville Division	Indiana	39839
1994	Hoosier Water Company - Warsaw Division	Indiana	39838
1994	Hoosier Water Company - Winchester Division	Indiana	39840
1994	West Lafayette Water Company	Indiana	39841
1994	Wilmington Suburban Water Corporation	Delaware	94-149 (stld)
1995	Butte Water Company	Montana	Cause 90-C-90
1995	Heritage Hills Sewage Works Corporation	New York	Municipal
1996	Consumers Illinois Water Company	Illinois	95-0342
1996	Elizabethtown Water Company	New Jersey	WR95110557
1996	Palm Coast Utility Corporation	Florida	951056-WS
1996	PenPac, Inc.	New Jersey	OAL-00788-93N
1996	Southern States Utilities, Marco Island	Florida	950495-WS
1997	Crestwood Village Water Company	New Jersey	BPU 96100739
1997	Indiana American Water Co., Inc.	Indiana	IURC 40703
1997	Missouri-American Water Company	Missouri	WR-97-237
1997	South County Water Corp	New York	97-W-0667
1997	United Water Florida	Florida	960451-WS
1998	Consumer Illinois Water Company	Illinois	98-0632
1998	Consumers Illinois Water Company	Illinois	97-0351
1998	Heritage Hills Water Company	New York	97-W-1561
1998	Missouri-American Wastewater Company	Missouri	SR-97-238
1999	Consumers Illinois Water Company	Illinois	99-0288
1999	Environmental Disposal Corp.	New Jersey	WR99040249
1999	Indiana American Water Co., Inc.	Indiana	IURC 41320
2000	South Haven Sewer Works, Inc.	Indiana	Cause: 41410
2000	Utilities Inc. of Maryland	Maryland	CAL 97-17811
2001	Artesian Water Company	Delaware	00-649
2001	Citizens Utilities Company	Illinois	01-0001
2001	Elizabethtown Water Company	New Jersey	WR-0104205

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Year	Client	State	Regulatory Docket/Case Number
2001	Kiawah Island Utility, Inc.	South Carolina	2001-164-W/S
2001	Placid Lakes Water Company	Florida	011621-WU
2001	South Haven Sewer Works, Inc.	Indiana	41903
2001	Southlake Utilities, Inc.	Florida	981609-WS
2002	Artesian Water Company	Delaware	02-109
2002	Consumers Illinois Water- Grant Park	Illinois	02-0480
2002	Consumers Illinois Water- Village Woods	Illinois	02-0539
2002	Valencia Water Company	California	02-05-013
2003	Consumers Illinois Water - Indianola	Illinois	03-0069
2003	Elizabethtown Water Company	New Jersey	WR-030-70510
2003	Golden Heart Utilities, Inc.	Alaska	U-02-13, 14 & 15
2003	Utilities, Inc. – Georgia	Georgia	CV02-0495-AB
2004	Aquarion Water Company	Connecticut	04-02-14
2004	Artesian Water Company	Delaware	04-42
2004	El Dorado Utilities, Inc.	New Mexico	D-101-CU-2004-
2004	Environmental Disposal Corp.	New Jersey	DPU WR 03 070509
2004	Heritage Hills Water Company	New York	03-W-1182
2004	Sun Valley Water & Washoe County Dept. of Water Revenues	Nevada	TMWA Municipal
2004	Jersey City MUA	New Jersey	Municipal
2004	Rockland Electric Company	New Jersey	EF02110852
2005	Aquarion Water Company	New Hampshire	DW 05-119
2005	Intercoastal Utilities, Inc.	Florida	04-0007-0011-0001
2005	Haig Point Utility Company, Inc.	South Carolina	2005-34-W/S
2005	South Central Connecticut Regional Water Auth.	Connecticut	Municipal
2006	Pennichuck Water Works, Inc.	New Hampshire	DW-04048
2006	Village of Williston Park	New York	Municipal
2006	Jersey City MUA	New Jersey	Municipal
2006	Groton Utilities	Connecticut	Municipal

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Year	Client	State	Regulatory Docket/Case Number
2006	Connecticut Water Company	Connecticut	06-07-08
2006	Birmingham Utilities, Inc.	Connecticut	06-05-10
2006	Aqua Florida Utilities, Inc.	Florida	060368-WS
2007	Aquarion Water Company of CT	Connecticut	07-05-19
2007	Pennichuck Water Works, Inc.	New Hampshire	DW 04-048
2007	Aqua Indiana - Utility Center	Indiana	43331
2007	Environmental Disposal Corp.	New Jersey	WR 04 080760
2007	Aqua Florida Utilities, Inc.	Florida	07-0183
2007	Aqua Illinois, Inc. - Hawthorn Woods, Willowbrook & Vermilion	Illinois	07-0620/07-0621/08-0067
2008	Aqua Florida Utilities, Inc.	Florida	080121-WS
2008	Aquarion Water Company of MA	Massachusetts	D.P.U. 08-27
2008	Haig Point Utility Company, Inc.	South Carolina	2007-414-WS
2009	R.M.V. Land & C.M. Livestock, L.C.C.	New Jersey	EM02050313
2010	City of Griffin	Georgia	Civil Action No. 09V-2866
2010	Connecticut Water Company	Connecticut	09-12-11
2010	Montville WPCA	Connecticut	1400012464
2010	Milford Water Company	Massachusetts	DPU 10-78
2010	Arizona American Water Company	Arizona	W-01303A-10-0448
2011	Aqua Illinois	Illinois	ICC Docket (Consolidated)
2011	Artesian Water Company	Maryland	MPSC Case 9252
2011	Artesian Water Company	Delaware	PSC 11-207
2011	Kiawah Island Utility, Inc.	South Carolina	2011-317-WS
2012	Washington Gas Light	Maryland	Senate SB541
2012	Washington Gas Light	Maryland	House HB662
2012	Daufuskie Island Utility	South Carolina	2011-229-W/S
2012	Milford Water Company	Massachusetts	DPU 12-86
2013	Artesian Water Company	Pennsylvania	2:10-CV-07453-JP
2013	Aquarion Water Company - Oxford	Massachusetts	CA 09-00592E

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Year	Client	State	Regulatory Docket/Case Number
2013	Water Management Services	Florida	110200-WU
2013	City of Fernandina Beach	Florida	Civil Action No. 13CA000485AXYX
2013	City of Elizabeth	New Jersey	Docket Nos. UNN-L-0556-10 and UNN-L-2608-11
2014	Daufuskie Island Utility Company, Inc.	South Carolina	Case No. 2013-CP-7-02255
2014	Artesian Water Company	Delaware	Docket No. PSC 14-132
2014	Aquarion Water Company - Hingham	New Hampshire	SUCU 2013-03159-BLS2
2015	EPCOR	Arizona	ACC Docket # WS-01303A-14-0010
2015	Mountain Water Company	Montana	Case # DV-14-352
2015	Daufuskie Island Utility Company, Inc.	South Carolina	Docket No. 2014-346-WS
2015	Housatonic Water Works	Massachusetts	D.P.U. 15-179

Papers and Presentations **By** **John F. Guastella**

Year	Title	Forum
1974 through 2015	1. Basics of Rate Setting 2. Cost Allocation and Rate Design 3. Revenue Requirements	Semi-annual seminars on utility rate regulation, National Association of Regulatory Utility Commissioners, sponsored by the University of South Florida, the University of Utah, Florida State University, The University of Florida and currently Michigan State University
1974	Rate Design Studies: A Regulatory Point-of- View	Annual convention of the National Association of Water Companies, New Haven, Connecticut
1976	Lifeline Rates	Annual convention of the National Association of Water Companies, Chattanooga, Tennessee
1977	Regulating Water Utilities: The Customers' Best Interest	Annual symposium of the New England Conference of Public Utilities Commissioners, Mystic Seaport, Connecticut
1978	Rate Design: Preaching v. Practice	Annual convention of the National Association of Water Companies, Baton Rouge, Louisiana
1979	Small Water Companies	Annual symposium of the New England Conference of Public Utilities Commissioners, Newport, Rhode Island
1979	Rate Making Problems Peculiar to Private Water and Sewer Companies	Special educational program sponsored by Independent Water and Sewer Companies of Texas, Austin, Texas
1980	Water Utility Regulation	Annual meeting of the National Association of Regulatory Utility Commissioners, Houston, Texas
1981	The Impact of Water Rates on Water Usage	Annual Pennsylvania Environmental Conference, Harrisburg, Pennsylvania
1981	A Realistic Approach to Regulating Water Utilities	Mid-America Regulatory Conference, Clarksville, Indiana
1982	Issues in Water Utility Regulation	Annual symposium of the New England Conference of Public Utilities Commissioners, Rockport, Maine
1982	New Approaches to the Regulation of Water Utilities	Southeastern Association of Regulatory Utility Commissioners, Asheville, North Carolina
1983	Allocating Costs and Revenues Fairly and Effectively	Maryland Water and Sewer Finance Conference, Westminster, Maryland
1983	Lifeline and Social Policy Pricing	Annual conference of the American Water Works Association, Las Vegas, Nevada (published)
1984	The Real Cost of Service: Some Special Considerations	Annual New Jersey Section AWWA Spring Meeting, Atlantic City, New Jersey
1987	Margin Reserve: It's Not the Issue	Florida Waterworks Association Newsletter, April/May/June 1987 issue

**Papers and Presentations
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Year	Title	Forum
1987	A "Current" Issue: CIAC	NAWC - New England Chapter November 6, 1987 meeting
1988	Small Water Company rate Setting: Take It or Leave It	NAWC - New York Chapter June 14, 1988 meeting Leave It
1989	The Solution to all the Problems of Good Small Water Companies	NAWC Quarterly magazine, Winter issue
1989	Current Issues Workshop - Panel	New England Conference of Public Utilities Commissioners, Kennebunkport, Maine
1991	Alternative Rate Structures	New Jersey Section 1991 Annual Conference, AWWA, Atlantic City, New Jersey
1994	Conservation Impact on Water Rates	New England NAWC and New England AWWA, Sturbridge, Massachusetts
1996	Utility Regulation - 21st Century	NAWC Annual Meeting, Orlando, Florida
1997	Current Status Drinking Water State Revolving	NAWC Annual Meeting, San Diego, California
1998	Fund Small Water Companies - Problems and	NAWC Annual Meeting, Indianapolis, Indiana
1998	Solutions Basic Rate Regulation Seminar	New England Chapter - NAWC, Rockport, Maine
2000	Developer Related Water and Sewer Utilities	Florida State University, Orlando, Florida
2001	Seminar Developer Related Water and Sewer Utilities	Florida State University, Orlando, Florida
2002	Seminar Regulatory Cooperation - Small Company	New England Chapter - NAWC, Annual Meeting
2003	Education Developer Related Water and Sewer Utilities	University of Florida, Orlando, Florida
2004	Seminar Basic Regulation & Rate Setting Training	Office of Regulatory Staff, Columbia, South Carolina
2005	Seminar Municipal Water Rates	Nassau-Suffolk Water Commissioners Association, Franklin Square, New York
2005	Innovations in Rate Setting and Procedures	NAWC New York Chapter, West Point, New York

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Year	Title	Forum
2006	Basics of Rate Setting	The Connecticut Water Company, Clinton, Connecticut
2006	Innovations in Rate Setting and Procedures	NAWC New York Chapter, Catskill, New York
2006	Best Practices as Regulatory Policy	NAWC New England Chapter, Ogunquit, Maine
2006	Rate and Valuation Seminar	NAWC New York Chapter
2006	Full Cost Pricing	U.S. Environmental Protection Agency Expert Workshop, Lansing, Michigan
2006	Innovations in Rate Setting	NAWC New England Chapter, Portsmouth, New Hampshire
2007	Weather Sensitive Customer Demands	NAWC Water Utility Executive Council, Half Moon Bay, California
2007	Basics of Rate Setting and Valuation Seminar	NAWC New England Chapter, Ogunquit, Maine
2007	Small Company Characteristics	National Drinking Water Symposium, La Jolla, California
2013	Rate and Valuation Seminar	NAWC New York Chapter
2015	Rate and Valuation Seminar	NAWC New England Chapter